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STRAITS BRANCH
ROYAL ASIATIC SOCIETY.

[No. 78]

JOURNAL

June, 1918.

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PRINTED AT THE METHODIST PUBLISHING HOUSE, SINGAPORE

[No. 78]

JOURNAL

of the

Straits Branch

of the

Royal Asiatic Society

June 15th, 1918.

SINGAPORE:
PRINTED AT THE METHODIST PUBLISHING HOUSE
1918.

THE
STRAITS BRANCH
OF THE
ROYAL ASIATIC SOCIETY

Council for 1918.

Hon. Mr. C. J. Saunders	*President.*
W. George Maxwell, Esq., C.M.G.	*Vice President for Singapore.*
Lieut. Col. the Hon. A. R. Adams	*Vice President for Penang.*
Hon. Mr. A. H. Lemon	*Vice President for F. M. S.*
Walter Makepeace, Esq.	*Hon. Secretary.*
Dr. R. Hanitsch	*Hon. Treasurer.*
C. Bazell, Esq.	*Hon. Librarian.*
Hon. Mr. Hayes Marriott	*Councillors.*
Capt. J. C. Moulton	
H. Robinson, Esq.	
Hon. Mr. H. W. Firmstone	

PROCEEDINGS
OF THE
Annual General Meeting.

Minutes of the Annual General Meeting of the Straits Branch of the Royal Asiatic Society, held at the Society's rooms in the Raffles Museum, at 5 p.m. on Thursday, February 28th, 1918.

PRESENT: Hon. Mr. C. J. Saunders, President in the chair; The Bishop of Singapore (Dr. Ferguson Davie), H. E. Major Gen. Ridout, C.M.G., H. Robinson, Capt. J. C. Moulton, Rev. J. A. B. Cook. R. J. Bartlett, V. Knight, Hon. H. Marriott, R. M. Goldie, H. C. Robinson, Rev. J. S. Nagle, C. Boden-Kloss, Dr. v. Beuningen v. Helsdingen, A. V. Brown, C. Bazell, Dr. R. Hanitsch, F. H. Myers, W. Makepeace, Rev. W. Murray and I. H. Burkill (Hon. Sec.).

The Minutes of the Annual General Meeting of February 27th, 1917 were taken as read, and confirmed.

The Annual Reports and Accounts were taken as read and were submitted for adoption.

Before they were passed Mr. H. C. Robinson called attention to the paragraph in the report referring to the Reports on the Robinson-Kloss expedition to Korinchi Peak, and said that the Council had not carried out their undertaking on the score of extra cost, and had subsequently earmarked $2000 for the Library.

Mr. Boden-Kloss supported the objection to this proceeding.

Discussion followed, bearing on the proposed arrangement and the reasons for having to modify it.

The report and accounts were adopted and passed.

The Election of Officers for 1918 resulted as follows, Messrs. Bartlett and Murray acting as scrutineers.

Hon. Mr. C. J. Saunders	*President.*
Mr. W. George Maxwell, C.M.G.	*Vice President for Singapore.*
Hon. A. R. Adams	*Vice President for Penang.*
Hon. A. H. Lemon	*Vice President for F. M. S.*
Mr. W. Makepeace	*Hon. Secretary.*
Dr. R. Hanitsch	*Hon. Treasurer.*
Mr. C. Bazell	*Hon. Librarian.*

The Election for members of Council resulted: —Hon. Mr. Hayes Marriott, Capt. J. C. Moulton, Mr. H. Robinson, the Hon. Mr. H. W. Firmstone.

Mr. W. Makepeace gave an address on Forty Years' Work of the Society.

The Chairman proposed and Capt. Moulton seconded:

That Rule 3 read.—

> Members shall be of three kinds—Ordinary, Corresponding and Honorary.

That Rule 7 read.—

> Distinguished persons, and persons who have rendered notable service to the Society may on the recommendation of the Council be elected Honorary Members by a majority at a General Meeting. Corresponding Members may, on the recommendation of two Members of the Council, be elected by a majority of the Council, in recognition of services rendered to any Scientific institution in British Malaya, or to Science generally in British Malaya. They shall pay no subscription: they shall enjoy the privileges of members except a vote at meetings, eligibility for office and free receipt of the Society's publications.

With a corresponding change in Rule 10 b, by the addition of the words "and corresponding" after the words "to elect Ordinary."

The hon. sec. explained the object of the alteration.

Mr. Boden-Kloss criticised it and suggested that it was not needed.

The alterations were adopted by thirteen votes to four.

The Chairman for the Council proposed that Mr. C. O. Blagden, Reader at the School of Oriental Studies, be elected an honorary member of the Society.

Mr. Boden-Kloss considered that honorary membership should be confined as a rule to those who had done active work for the Society in Singapore.

It was pointed out that Mr. Blagden had been Secretary to the Society, and that he had largely contributed to the Journal.

Mr. Blagden was unanimously elected a Honorary Member.

A vote of thanks to the Auditor, Mr. See Tiong Wah was carried.

A vote of thanks was accorded to Mr. Makepeace for his address.

A vote of thanks to the Chairman concluded the meeting.

Annual Report of the
Straits Branch of the Royal Asiatic Society for 1917.

The active membership of the Society is estimated at 290.

The death in action of four further members has been ascertained since the last report was written—namely, Lieut.-Colonel V. A. Flower, Captain H. Millard, Mr. M. Thunder and Mr. R. B. Williams. Of Honorary Members, the loss of His Highness the late Rajah of Sarawak is regretted, and of members of the Hon. Tan Jiak Kim, C.M.G., Mr. J. C. Hermansen and Mr. G. C. Morant.

The Council has elected the following New Members:—

Dr. J. W. Adams.
Mr. R. H. Adams.
Mr. P. T. Allen.
Mr. G. P. Bradney.
Mr. C. F. W. Clifford.
Mr. R. Crichton.
Mr. G. E. S. Cubitt.
Dr. G. A. Finlayson.
Mr. G. B. Gloyne.
Mr. R. M. Goldie.
Mr. G. A. Hereford.
Mr. P. R. Hill.
Dr. C. Hose.
Rev. Keppel Garnier.
Mr. D. James.
Mr. E. P. Jones.
Mr. V. V. Lemberger.
Rev. J. S. Nagle.
Mr. R. Pears.
Mr. D. Y. Perkins.
Dr. M. Rattray.
H. E. Maj.-Genl. D. H. Ridout, C.M.G.
Mr. P. C. Russell.
Mr. C. W. A. Sennett.
Mr. G. Shillitoe.
Mr. H. L. Sumner.
Mr. W. L. Swan.
Mr. G. R. Sykes.
Mr. M. B. Tennent.
Mr. J. Watson.
Captain W. G. Yates.

The personnel of the Council was changed during the year only by the resignation of Professor J. Argyll Campbell.

The Journal was published thrice—in April, August and December: and the year's volume, so made up, is of normal size. Its cost was about $1,250, the bill of the last part not entering into the years' accounts.

In the report for the year 1915 it was mentioned that the Council had undertaken to publish the Reports on the Robinson-Kloss expedition to Korinchi Peak, Sumatra, as additional to the Journal. In the end, however, partly owing to the increased cost of paper, the Council has to content itself with handing to the authors the illustrations already prepared for the work, together with the balance of the £100 which had been granted by the Council.

The appeal in the last report for short papers for the Journal had an excellent effect, and the Journal contains 30 articles, which is many more than usual: four are on Malay history, seven on the language and literature, five on customs, one on art, one on ethnography, one on zoology, ten on botany, and one on the physiological difference in digestive power between Europeans, Chinese, Malays and Natives of India.

Mr. E. D. Merrill made to the Society an offer of his valuable Index to the Bornean Flora: but the Council feeling that other matter in sight for the Journal had a prior claim transmitted it with the author's consent to His Highness the Raja of Sarawak who will cause the index to be printed in the Sarawak Museum Journal.

For the purpose of illustrating an early Journal, photographs of the tombstones of Sultan Mansur have been procured from Malacca.

Some of the Malay texts published by the Society are being used in the higher schools of the Peninsula; and the Council felt justified in reducing the price at which they are sold.

The Library has received the usual exchanges.

The Hon. Treasurer's balance sheet shows $4,700 invested, including $2,200 in the Straits Settlements War Loan, and $845.62 in current account.

I. Henry Burkill,
Hon. Secretary.

Singapore, 8th February, 1918.

STRAITS BRANCH ROYAL ASIATIC SOCIETY.

Receipts and Payments Account for the year ended 31st December, 1917.

Receipts.	$	c.	$	c.
To Balance Brought forward from last Account:				
On Fixed Deposit: Mercantile Bank	2,500	—		
War Loan	2,200	—		
Current Account: Mercantile Bank	429	24		
do. : Chartered Bank	284	39		
		—	5,413	63
To Subscriptions:				
For the year ended 31st Dec. 1913	5	—		
do. do. 1914	15	—		
do. do. 1915	40	—		
do. do. 1916	90	—		
do. do. 1917	915	—		
do. do. 1918	30	—		
do. do. 1919	10	—		
1 Life Membership	50	—		
		—	1,155	—
To Sale of Journals			388	64
,, Sale of Maps			555	53
,, Odd receipts			7	49
,, Bank Interest, Mercantile Bank and War Loan			276	89
			7,797	18

Payments.	$	c.	$	c.
By Printing Journal No. 70 ..	130	84		
,, do. ,, 74 ..	229	—		
,, do. ,, 75 ..	288	08		
,, do. ,, 76 ..	325	09		
,, Books for Library	25	—		
,, Bookbinding	113	50		
,, Stationery	26	98		
,, Grant towards the Korinchi Expedition Report	510	74		
,, Salaries	227	33		
,, Postages and Petties	88	75		
,, Illustrations for Journal ..	286	25		
		—	2,251	56
,, Balances carried forward:				
On Fixed Deposit: Mercantile Bank			2,500	—
War Loan			2,200	—
Current Account:				
Mercantile Bank			561	23
Chartered Bank			284	39
			7,797	18

Audited, vouchers and counterfoil receipts
and F/D receipts seen and found correct.
SEE TIONG WAH.
January 15th 1918.

R. HANITSCH,
Hon. Treasurer.
January 12th, 1918.

A REVIEW

Of the Forty Years' Work of the Society.

An Address at the Annual General Meeting of Feb. 28th 1917.

By Walter Makepeace.

In attempting to estimate the work done by the Society during these forty years reference has been made (1) to the minutes, which luckily have been regularly preserved, although extremely brief at times. Mr. Burkill the Secretary has compiled an index which was of great assistance; (2) the Index to Journals 1-50, compiled nine years ago by the late Mr. W. D. Barnes. A work awaiting some member is the index of the following numbers, which should follow the same plan, and if not published at once, should be ready for publication when No. 100 is issued; (3) The papers themselves as a criterion of the subjects dealt with and as assessing the zeal of the members in carrying out what is perhaps the most important function of the Society, namely the record of investigations of subjects connected with the Straits of Malacca and the neighbouring countries. By diligent study of the Journals issued new members are put in touch with what has already been done, have suggested to them lines of study and investigation, are saved much original research, become imbued with the spirit of the best of the past members, and will also, I am convinced, be filled with admiration at the industry of those who laid the foundations of the Society. The indices of the various numbers issued since No. 50 are useful for the same end as Mr. Barnes's index, with which they should be read.

The original Asiatic Society of Bengal was founded by Sir William Jones (1746-1794) a Puisne Judge, and the date of its foundation was Jan. 15th, 1784. The Centenary of the "Asiatick Society" was celebrated by the publication of a Centenary Review, a bulky volume Part I dealing with the History of the Society, Part II with Archaeology, History, Literature, etc., Part III with Natural Science. As the original society the A. S. of B. is our parent, I may quote these words from the founder's letter: "in the fluctuating imperfect and limited erudition of life such enquiries and improvements could only be made by the united efforts of many, who are not easily brought, without some pressing inducement or strong impulse, to converge into a common point.

The association of this Society with the A. S. of B. has been of a cordial nature. Dr. Wallich, who was in Singapore in 1822, had presented some botanical works to the Society. The earlier journals contain the following papers by men connected in early years with the Straits.

Raffles, Thomas—On the Malayan Nation (As. Res. XII, 102).

Farquhar, Major (died 1839)—An account of a new species of Tapir in the Malay Peninsula (As. Res. XIII, 417).

Logan, J. R.—Two papers on the Geology of Singapore (J. XVI, 667; J. XVI, 519).

Low, Col. J. (see references in Buckley's Anecdotal History)—The Geological Appearances and General Features of the Malay Peninsula, etc. (As. Res. XVIII, pt. 1, 128)—An account of several inscriptions found in Province Wellesley (J. XVII, pt. 2, 62)—An inscription from Kedah (J. XVIII, 247).

Marsden, W.—Traces of Hindu Literature and Language among the Malays (As. Res. IV, 221).

Newbold, Capt. J. W. T.—Eleven papers on Malayan Geography, J. II, 497; III, 601; IV, 241, 297, 537; V, 61, 257, 505, 561, 626, 670.

Our Members are entitled to attend the meetings of the A. S. of B. when in Calcutta, which right is reciprocated.

The Royal Asiatic Society of Great Britain and Ireland in London was founded in 1823, by Thomas Henry Colebrooke, who was president of the Asiatic Society of Bengal, 1806-16. The record of our own connection with the R. A. S. (London) is contained in our minutes, 1902. Mr. Ridley interviewed Dr. Rhys Davids, the Secretary, who expressed a desire for closer union with us, wished to exchange papers, and said that members of affiliated Societies could attend the meetings of the London Society and 'in other ways the parent Society would be willing to assist the Straits Branch.' Closer union was urged again in 1910. In 1912 our Society resolved that members of the R. A. S. of London be accorded the privileges of membership without election.

The Bombay Asiatic Society was founded in 1827, the Ceylon in 1845, the China Branch in 1858 and the Japan Branch in 1872. With all these we are in cordial correspondence and it might be well if members visiting the head-quarters of these Societies were to attempt to get into personal touch with them. The Empire of Knowledge knows no geographical boundaries.

The Straits Branch.

Turning to the history of the past forty years of our Society, the initial meeting was held on Nov. 4th, 1877, when it was resolved "that the gentlemen present form themselves into a Society for collecting and recording scientific information in the Malay Peninsula and Archipelago." Possibly the meeting had not considered the "literary" branch of the Society, although with Mr. Hose, then Archdeacon, Mr. D. F. A. Hervey, Mr. W. E. Maxwell, and Mr. W. A. Pickering, the thought of this important branch of work must have been present in their minds.

The provisional committee met again on Jan. 21st 1878, and the draft rules having been agreed to, the first election of officers took place, and an Editorial Committee was chosen.

The Inaugural Address was delivered at the meeting of Feb. 28th 1878, at which meeting 35 members were elected. Also Mr. Miklucho-Maclay, a Russian traveller who had extensively explored the Malay Peninsula and the Coasts of New Guinea, was elected an Honorary Member of the Society. And Mr. Skinner exhibited a sketch map of the Peninsula, which was to occupy so much of the Society's energy in coming years.

Archdeacon Hose's inaugural address can be read in No. 1 of the Journal. Like all the addresses of the founder of the Society, it was markedly scholarly, and I would fain quote it at length, but time forbids. These points are striking: the praise he had for Mr. J. R. Logan, who for fifteen years edited 'The Journal of the Indian Archipelago' in Penang and was a first Vice President in Penang; the hope he expressed that the resident families of the Straits, the Baumgartens, the Neubronners, the Westerhouts would continue to add to the common knowledge; the stress he laid on the value of association in stimulating the accumulation and record of facts; his plans for the journal a six-monthly issue to begin with, as a chief instrument in the work of the Society; co-operation with the Raffles Library, which is to this day a valuable feature in the Society's work; the need for study of the developments of Islam among the races of this part of the world—the Society has not done too much in this respect; the field there is in the Malay language for study, in which he himself excelled; the development of the Native States then first associated with the Colony by the inauguration of the Residential System by Sir Andrew Clarke; the geography of the Peninsula, about which little was known; the map with immense spaces entirely blank, which map was to play so important a part in the work of the Society.

The inaugural address was a great and useful stimulant and should be read by young members keen on co-operating in the plans there sketched out.

Besides the inaugural address on Feb. 28th, 1878, Mr. A. M. Skinner, whose work in the Society was mainly geographical, introduced "The Map" which has been so useful to the public, so profitable to the Society, absorbing so much of its time. A paper which recalls the local controversy of a few years ago "Breeding Pearls of Borneo" was read by Dr. Dennys.

The Society met monthly. The earliest papers were "Chinese in Singapore," Mr. J. D. Vaughan; Malay Proverbs, Sir W. E. (then Mr.) Maxwell; "Notes on Gutta and Caoutchouc in the Malay Peninsula"—with no foreknowledge however of the Hevea brasiliensis; and a notice was issued as to the method of collecting vocabularies for comparison.

By May 6th, communication has been established with the Royal Asiatic Society of London, agreeing to exchange publications. The present full name of the Society was adopted. Languages were fairly recognised and a paper from the first honorary member, Mr. M. Maclay was entitled "The dialects of the Melanesian tribes in the Malay Peninsula." Three papers were read and four native gentlemen elected.

The first rules of the Society state that the objects of the Society shall be "The Investigation of Subjects connected with the Straits of Malacca and the neighbouring Countries; (b) publication of papers in a journal; (c) formation of a library of books.

Rule 25 provides that "occasional popular lectures upon Literary or Scientific subjects may be delivered, under the sanction of the Council on evenings other than those appointed for General Meetings of the Society." This rule has never been put into operation, to the detriment of the educative value of the Society, I venture to think. A few years ago the Council declined to have an important public lecture on Malarial Mosquitoes by a Medical expert, delivered under its auspices; and still more recently on a proposal for popular lectures 1913-14, it was thought that they "cannot be arranged with success." The idea seemed to be that if lectures were popular, they could not be exact enough to satisfy the literary and scientific instincts of the Council, after a reply to a member "that the subject had not been lost sight of."

The Society was now in full swing. The first year's work was prodigious, and if similar energy has not been always shown during the 40 years of the Society there has never been a cessation of work, as a glance at the contents of the 71 numbers of the Journal, and especially No. 51—the index of the first fifty numbers—will show. A note should be kept of the completion of No. 100, in order that a second (or preferably complete index) may then be issued. Mr. Barnes, who compiled the index, made no attempt to compile a subject index but placed them under appropriate headings. These naturally fall into two classes, Physical and Literary, the former embracing natural history, philosophy, medicine, improvements of the Arts, and whatever is comprehended in the general term of physics. Subjects under the second head would be literature, philology, history, antiquities and ethnology—to which may be added recording knowledge for the use of future generations.

Very much has been done by members of the Society on the literary side. The Malay language and literature, such as it is, has been studied and recorded; Malay Customs and Amusements, legends and traditions, and to some extent religion and superstition have been made the subject of papers. In bulk, this side of the Society's work looks well, but in the matter of religion there seems to have been a want of complete and accurate observation. As the first President observed "Nearly all Malays are Mohammedans and people seem to consider that when they have said that, they have said all that need be said on the subject." National policy not to interfere with the religion of the people in our Colonies; and the natural (or assumed) diffidence of the British to speak about religion and belief are no doubt responsible for what looks like a lost opportunity. "A man's religion is the chief fact with regard to him; a man's or a nation of men's." The main literary publications include four Hikayat, beginning with that of the famous Abdullah; four volumes of Miscellaneous papers relating to Indo-China, reprinted for the Society; a good many miscellaneous vocabularies; lists of place-names; disease-names; plant-names; Malay fairy tales, etc. Sir W. E. Maxwell's work in this respect stands easily first, and there are indications of fields yet to be worked and willing workers, but on the whole I diffidently suggest that the Literary side of the Society's work as judged by publications under its auspices has not come up to expectation. The author is a jealous father, disinclined to share with any one or any Society the honours of paternity.

On the physical side, the Society has had the inestimable benefit of the Government Specialists attached to the Forests and Museums as very active members. Mr. Ridley quite recently gave an address on the progress made by members of the Society in the different branches of physical research, and this address should be read as part of any record of forty years of the Society.

Let us now praise famous men. Forty years of a Society existing under circumstances such as ours is the equivalent of four generations. I think the oldest member of the Society now in Singapore is Mr. Seah Liang Seah, elected in 1888. Dr. Shellabear came in in 1894 and we may hope that he will be able to return to the Colony. The activities of Mr. C. J. Saunders began in 1896, so that your Chairman has passed his majority, and but for the fact that he is present I would speak of his constant interest in the Society and regular attendance at the Council meetings as an exemplar.

The father of the Society is indubitably Bishop Hose, whose portrait hangs in this room, and whose memory is ever-green. It was to him that the Society owed its inception and much of its vigour for the thirty years during which he occupied the office of President, almost without a break, till the actual day of his retirement in 1908, after forty years service in the Straits.

In 1890 two well-known members of the Society were elected, Messrs. H. N. Ridley, Mr. C. O. Blagden; the late Mr. Arthur Knight joined in 1888. He brought to the Council that long and useful service at once a source of inspiration and of help in carrying on what may be called the machinery of the Society. Mr. Ridley came at a very critical time, in 1890. He took up the Honorary Secretaryship in the same year and if Bishop Hose was the mainspring of the Society, Mr. Ridley was certainly the escapement, and with his colleague Dr. Hanitsch, still our honorary treasurer, has kept us going to this day. Many useful contributions to the Journal have come in from Scientists of "the neighbouring countries"—Sarawak, especially, but of late years the multiplication of departmental journals, while no doubt gratifying to the editors and writers, has diffused energy and made much useful knowledge less accessible than it would be if published in a Journal with editions of 500, to which the Journal of the R. A. S. (Straits Branch) has now attained. If all the writings of all the savants were concentrated, the issue of our Journal could be made regular, of fair dimensions, and of more general interest. With the passing of the Map, the Journal becomes increasingly important to the Society, and more and more valuable as a record.

This subject of "record" brings me to a matter which was last under consideration in 1914—the forming of a collection of photographic records. Nothing has yet been done in this respect. Many of our members must have prints and negatives of interest in our brief-lived community. The questions of permanency of interest and of the record are not easily solved but to my mind a useful field lies open to the Society, and a small Photographic Records committee of members skilled in the "dark" art could probably devise a means of making the Society's Library a valuable and permanent record of the times and useful to the generations that come after us.

Time does not permit me to deal with any history of the financial or other machinery of the Society. And my own conviction is that no *good* organisation in the Straits languishes for lack of funds as long as its members are keen. We have had "downs"—as when Mr. Ridley took charge, and "ups" as when Dr. Galloway secured a large number of new members some few years ago. Our chief income, now that the Map has passed into other hands, professional hands, must be Members Subscriptions, and a careful eye must be kept on the list, so that losses by retirement on departure from the Colony may be made good by new additions. The life of the Society depends, however, upon the spirit which animates its members. The practice of permitting new members to purchase back copies of the Journal at a very small price would not only convert locked-up capital into liquid assets, but would stimulate the interest of new comers, inform them somewhat of what has been done in the past, indicate directions in which their work for the Society might lie, and secure members to carry on the ideals of the founders and early members of the Society, which may be lost sight of with a comfortable bank balance and an efficient working machine. The Society, I conceive it, will be judged not by the machinery, but by the results. One wants to concentrate all scientific and literary study, and if the medical, scientific planting and mining, industrial, literary and philosophic interests of Malaya could be concentrated in the Society, a decade would be sufficient to make its foundations more secure than ever. Its functions may be summed up: to investigate, to record,—and record is a useful step to further investigation—to collect knowledge, not only among its members but from all earnest inquirers and workers.

List of Members for 1918.

*Life Members. †Honorary Members.

Patron His Excellency Sir Arthur Young, G.C.M.G., Governor of the Straits Settlements and High Commissioner for the Malay States.

Date of election.	
18 Jan., 1903.	Abbott, Dr. W. L., 400, South 15th Street, Philadelphia, U. S. A.
21 Sept., 1916.	Abraham, H. C., Survey Dept., Kuala Lumpur.
24 June, 1909.	Adam, Frank, The Straits Trading Co., Singapore.
— 1907.	Adams, Lieut.-Col., the Hon. A. R., Messrs. Adams and Allan, Penang, [Vice-President, 1910; 1917].
14 Dec., 1910.	Adams, H. A., Sadong, Sarawak.
20 June, 1910.	Adams, H. Powys, Imber Cross, Thames Ditton, Surrey, England.
22 March, 1917.	Adams, Dr. J. W., Moulmein Road Hospital, Singapore.
22 March, 1917.	Adams, R. H., c/o Messrs. Topham, Jones and Railton, Ltd., Singapore.
10 March, 1909.	Adams, T. S., District Officer, Kuala Krai, Kelantan.
7 Feb., 1910.	Aldworth, J. R. O., Kuala Lumpur.
17 Feb., 1913.	Allen, Rev. George Dexter, Singapore.
3 May, 1914.	Allen, H. C. W., c/o Messrs. Boustead & Co., Singapore.
22 March, 1917.	Allen, P. T., Chinese Protectorate, Singapore.
16 Feb., 1914.	Amery, Rev. A. J., Victoria Bridge School, Singapore.
— 1907.	Anderson, E., Messrs. Mansfield and Co., Singapore.
12 Oct., 1911.	Armstrong, W. R., L.L.D., D.C.L., Messrs. Logan and Ross, Penang.
27 Oct., 1908.	Arthur, J. S. W., Assistant Adviser, Kedah.
4 June, 1908.	*Ayre, C. F. C., High School, Malacca.
3 May, 1915.	Baddeley, F. M., Postmaster General, Singapore.
1 Feb., 1915.	Bain, Norman K., Kuala Langkat.
20 May, 1912.	Baker, A. C., c/o W. Evans, Esq: The Limes, Crowmarsh near Wallingford, Berks, England, (Hon. Librarian, 1912-1913).

28 Nov., 1916.	Banks, H. H., Sanitary Board, Seremban.
10 Jan., 1899.	*Banks, J. E., c/o the American Bridge Co. Ambridge, Pa., U. S. A.
23 June, 1904.	Bartlett, R. J., Inspector of Schools, Singapore.
24 May, 1910.	Bartley, W., Civil Service, Singapore.
20 July, 1914.	Bazell, C., Vade & Co., Singapore. (Hon. Librarian, 1916—17).
24 June, 1909.	Bean, A. W., c/o Messrs. Robinson & Co., Singapore.
16 June, 1913.	Bell, V. G., Forest Department, Kuala Lumpur.
25 Feb., 1910.	*Berkeley, H., F. M. S. Civil Service.
14 Aug., 1912.	Bicknell, J. W., c/o General Rubber Co., Medan, Sumatra.
— 1885.	Bicknell, W. A., 37, Milton Avenue, Wellsway, Bath, England.
4 June, 1908.	*Bishop, Major C. F., R. A.
27 Jan., 1890.	*Blagden, C. O., India Office Library, Whitehall, London, S. W., (Hon. Secretary, 1896).
13 Feb., 1917.	Blair, R. H. Balfour, Tagil Estate, Malacca.
— 1884.	Bland, R. N., c.m.g., Broadfields, Letchworth, Herts, England. (Council, 1898-1900: Vice-President, 1907—1909).
14 Dec., 1910.	Boult, F. F., Bintulu, Sarawak.
16 Aug., 1915.	Boyd-Walker, J. W., Atbara Estate, Kuantan, Pahang.
13 Jan., 1913.	Braddell, R. St. J., Messrs. Braddell Bros., Singapore.
12 Feb., 1918.	Bradney, G. P., Audit Office, Singapore.
23 Sept., 1897.	Brockman, Sir Edward L., k.c.m.g., Kuala Lumpur.
1 April, 1910.	Brooke, J. R., Government Monopolies Department, Keppel Harbour, Singapore.
13 Jan., 1909.	Brooks, C. J., Lebong Tandai, Benkoelen, Sumatra.
8 Sept., 1909.	Brown, A. V., Civil Service, Singapore.
16 Aug., 1915.	Brown, C. C., F. M. S. Civil Service, Kuala Lumpur.
27 Jan., 1910.	Brown, D. A. M., Messrs. Brown, Phillips and Stewart, Penang.
1 Dec., 1913.	*Bryan, J. M., Kuching, Sarawak.
26 March, 1887.	Bryant, A. T., (Council, 1907: 1910: Vice-President, 1912, 1914-1916). England.
28 Oct., 1912.	Burkill, I. H., Botanic Gardens, Singapore. (Council, 1913: Hon. Secretary, 1914-1917).
29 Sept., 1913.	*Caldecott, Andrew, Secretariat, Kuala Lumpur.

16 Jan., 1916. Campbell, Professor J. Argyll, M.D., D.SC. Medical School, Singapore (Council, 1917).

16 Feb., 1914. Cardew, Capt. G. E., 4th Devon, Heyford House, Cullompton, Devon, England.

3 Jan., 1909. Carver, C. I., Messrs. Donaldson and Burkinshaw, Singapore.

27 Jan., 1910. Chancellor, Hon. Capt. A. R., Police Office, Singapore.

15 Jan., 1906. Chapman, W. T., Ipoh, Perak.

1 Dec., 1913. *Choo Kia Peng, Kuala Lumpur.

16 March, 1911. Clayton, T. W., Temerloh, Pahang.

2 Feb., 1914. Clement, W. R. T., Sarawak.

22 March, 1917. Clifford, G. F. W., Juasseh, Negri Sembilan.

13 Jan., 1913. Chulan, Raja, bin Ex-Sultan Abdullah, Kuala Kangsar, Perak.

30 Jan., 1894. †Collyer, W. R., I. S. O., Hackford Hall, Reepham, Norfolk, England. (Council 1904: Vice President, 1897-1900, 1902, 1904-1905: Hon. Member, 1906).

1 March, 1897. *Conlay, W. L., Kuala Lumpur.

27 Jan., 1899. Cook, Rev. J. A. B., Gilstead, Singapore.

— 1910. Cook, Hon. W. Wallace, c/o The Straits Trading Co., Singapore.

22 March, 1917. Crichton, R., The Secretariat, Singapore.

13 Feb., 1917. Cross, Rev. W., Cavanagh Road, Singapore.

14 Aug., 1912. Crossle, Frank J., Ulu Kesial Estate, Kelantan.

27 Jan., 1910. Croucher, Dr. F. B., General Hospital, Singapore.

22 March, 1917. Cubitt, G. E. S., Conservator of Forests, S. S. and F. M. S., Kuala Lumpur.

24 May, 1910. Daly, M. D., Batu Gajah, Perak.

27 Jan., 1910. Darbishire, Hon. C. W., c/o Messrs. Paterson, Simons & Co., Singapore.

— 1907. Dent, Dr. F., Government Analyst, Singapore.

5 Nov., 1903. *Deshon, H. F., Southfield, Combe Down, Bath, England.

23 Sept., 1897. Dickson, E. A., 26, Randolph Crescent, Maida Hill, London.

28 July, 1905. Douglas, Hon. R. S., Baram, Sarawak.

30 Nov., 1914. Duncan, W. Wallace, Assistant Censor, General Post Office, Penang.

27 Jan., 1910. Dunman, W., Grove Estate, Tanjong Katong, Singapore.

16 Aug., 1915. *Dussek, O. T., Malay College, Malacca.

13 Oct., 1899. Edmonds, R. C., F.M.S. Civil Service, Seremban.

— 1885.	Egerton, His Excellency Sir W., K.C.M.G., Renby Grange, Boarshead, near Tunbridge Wells, England.
27 Jan., 1910.	Ellerton, H. B., F. M. S. Civil Service, Kuala Kangsar, Perak.
3 June, 1909.	Ellis, Sir Evelyn C., Messrs. Drew and Napier, Singapore.
16 Jan., 1916.	Ellis, J. W. Cundell, F. M. S. Civil Service, Kuala Lumpur.
27 Jan., 1910.	Engel, L., Netherlands Trading Society, Batavia.
25 March, 1913.	Ermen, C., Kuching, Sarawak.
27 Jan., 1910.	Evans, W., The Limes, Crowmarsh near Wallingford, Berks, England.
7 Feb., 1910.	Falshaw, Dr. P. S., Government Veterinary Department, Singapore.
8 Sept., 1909.	Farrer, R. J., Kota Bharu, Kelantan.
26 Jan., 1911.	*Ferguson-Davie, Rt. Rev. Dr. C. J., Bishop of Singapore (Council, 1912-1913).
8 Sept., 1909.	Ferrier, J. G., c/o Borneo Company, Soerabaya, Java.
22 March, 1917.	Finlayson, Dr. G. A., Singapore.
24 May, 1910.	Firmstone, H. W., Education Department, Singapore.
12 Jan., 1900.	Fleming, T. C., Larut, Taiping, Perak.
2 Sept., 1897.	*Flower, Major S. S., Zoological Gardens, Ghizeh, Egypt.
16 Jan., 1916.	Ford, H. W., Municipal Offices, Malacca.
19 Aug., 1908.	Freeman, D., 9, Court of Justice, Kuala Lumpur.
27 Jan., 1910.	*Frost, Meadows, S. S. Civil Service.
14 Aug., 1912.	Gallagher, W. J., General Rubber Co., Medan Sumatra.
23 Jan., 1903.	†Galloway, Dr. D. J., British Dispensary, Singapore. (Vice-President, 1906—1907; President, 1908—1913; Hon. Member, 1917).
26 Oct., 1917.	Garnier, Rev. Keppel, Penang.
26 May, 1897.	*Gerini, Lt.-Col. G. E.
8 Sept., 1903.	Gibson, W. S., High Court, Kedah.
28 May, 1902.	*Gimlette, Dr. J. D., 5, Merton Road, Southsea, England.
4 Jan., 1916.	Glennie, Dr. J. A. R., Municipal Offices, Singapore.
12 Feb., 1918.	Gloyne, G. B., Samarang, Java.
————	Goldie, R. M., Vade & Co., Singapore.
21 Sept., 1916.	Goodman, A. M., Penang.
18 March, 1909.	Goulding, R. R., Survey Department, Kuala Lumpur.

27 Jan., 1910.	Gray, N. T., Taiping, Perak.
18 April, 1918.	Greene, Dr. D. L., Kuching, Sarawak.
14 Sept., 1911.	Griffiths, J. Superintendent of Surveys, Johore Bahru.
13 Jan., 1916.	Gupta, Shiva Prasad, Nandansahu Street, Benares City, United Provinces, India.
12 — 1886.	Hale, A., Dachurst, Hildenborough, Kent, England.
15 July, 1907.	Hall, G. A., Alor Star, Kedah.
5 May, 1914.	Hall, J. D., Batu Pahat, Johore.
26 Jan., 1911.	Hallifax, F. J., Municipal Offices, Singapore.
12 April, 1915.	Hamilton, A. W. H., Central Police Office, Penang.
16 March, 1911.	Handy, Dr. J. M., St. Mary's Dispensary, 75, Hill Street, Singapore.
11 Sept., 1895.	Hanitsch, Dr. R., Raffles Museum, Singapore. (Council, 1897, 1907-1909: Hon. Treasurer, 1898-1906, 1910-1911, 1914-1916: Hon: Secretary, 1912-1913).
3 June, 1909.	Harrington, A. G., Municipal Offices, Singapore.
5 Jan., 1904.	*Haynes, A. S., Tampin, Negri Sembilan.
24 June, 1909.	Hennings, W. G., c/o Messrs. Mansfield & Co., Singapore.
26 Oct., 1917.	Hereford, G. A., Province Wellesley.
6 June, 1910.	Hewan, E. D., c/o Messrs. Boustead & Co., Singapore.
— 1878.	Hill, E. C., The Manor House, Normandy near Guildford, England.
12 Feb., 1918.	Hill, P. R., Evatt & Co., Singapore.
12 Oct., 1911.	Hood-Begg, Hon. A., c/o Messrs. Guthrie & Co., 5, Whittington Avenue, London, E. C.
26 Oct., 1917.	Hose, Dr. C., Britannia House, Hunstanton, Norfolk, England.
22 Nov., 1897.	Hose, E. S., Telok Anson.
A founder, 1878.	†Hose, Rt. Rev. Bishop G. F., Wyke Vicarage, Normandy near Guildford, England. (Vice-President, 1890-1892: President, 1894-1907).
7 Oct., 1891.	Hoynck van Papendrecht, P. C., 7, Sweelinckstraat, The Hague, Holland.
20 Oct., 1909.	Hubback, T. R., Pertang, Jelebu, Negri Sembilan.
20 Oct., 1909.	Hughes, J. W. W., Temerloh, Pahang.
15 July, 1907.	Humphreys, J. L., Trengganu.
27 Jan., 1910.	Jackson, Col. H. M., c/o the Survey Department, Kuala Lumpur.

21 Sept., 1916.	James, Hon. F. S., C.M.G., Colonial Secretary, Singapore.
12 Feb., 1918.	James, D., Banjermasin, Dutch Borneo.
27 Jan., 1910.	Jamieson, Dr. T. Hill, 4, Bishop Street, Penang.
26 March, 1907.	Janion, E. M., c/o English, Scottish and Australian Bank, 38, Lombard St., London, E. C.
1 Dec., 1911.	Jelf, A. S., Ipoh, Perak.
— 1910.	Johnson, B. G. H., Telok Anson.
15 June, 1911.	Johnson, Hon. H. S. B., Limbang, viâ Labuan.
12 Feb., 1918.	Jones, E. P., Fleet Paymaster, Fort Canning, Singapore.
27 Jan., 1910.	Jones, H. W., Kuantan, Pahang.
17 Feb., 1913.	Jones, S. W., Pekan, Pahang.
26 May, 1912.	Jones, Wyndham, Miri, Sarawak.
16 April, 1912.	Jones, W. R.
21 Sept., 1916.	Kamaralzaman, Raja, bin Raja Mansur, Tapah, Perak.
20 Oct., 1909.	Keith, Dr. R. D., England. (Council, 1911-1912, 1914-1916).
10 Feb., 1916.	Kellagher, G. B., S. S. Civil Service, Singapore.
3 June, 1909.	Kemp, W. Lowther, c/o Messrs. F. W. Barker and Co., Singapore.
13 Jan., 1913.	Kempe, John Erskine, Kuala Lumpur.
23 May, 1906.	Kinsey, W. E., Forest House, Seremban.
27 Jan., 1910.	Kirk, Dr. J., Penang.
29 Jan., 1900.	Kloss, C. Boden, The Museum, Kuala Lumpur. (Council, 1904-1908).
12 April, 1915.	Knight, Valentine, Raffles Museum, Singapore.
31 Jan., 1902.	Laidlaw, G. M., Pekan, Pahang.
16 Feb., 1914.	Lambourne, J., Castleton Estate, Telok Anson, Perak.
5 May, 1914.	Laville, L. V. T., Balik Pulau, Penang.
28 May, 1902.	†Lawes, Rev. W. G., Port Moresby, New Guinea.
5 Oct., 1906.	Lawrence, A. E., Kuching, Sarawak.
29 Sept., 1913.	Leicester, Dr. W. S., Pekan, Pahang.
22 March, 1917.	Lemberger, V. V., c/o United Engineers, Ltd., Singapore.
28 March, 1894.	*Lemon, Hon. A. H., Seremban. (Vice-President, 1916-17).
30 May, 1890.	Lewis, J. E. A., B. A., 698, Harada Mura, Kobe, Japan.
16 Aug., 1915.	Lewton-Brain, L., Director of Agriculture, Kuala Lumpur.
20 May, 1897.	Lim Boon Keng, Hon. Dr. M.D., c/o The Dispensary, Singapore.

12 April, 1915.	Lim Cheng Law, Millview, Penang.
16 Feb., 1914.	Lornie, J., Land Office, Singapore.
8 June, 1909.	Low, H. A., c/o Messrs. Adamson, Gilfillan and Co., Penang.
27 Jan., 1910.	Lupton, Harry, Bukit Mertajam, Province Wellesley.
26 June, 1907.	Lyons, Rev. E. S., 82, Isla de Romero, Manila.
3 June, 1909.	McArthur, M. S. H., Kuala Lumpur.
23 Sept., 1897.	McCausland, C. F., Port Dickson.
25 Feb., 1910.	*MacFadyen, Eric, Kuala Lumpur, Selangor.
24 July, 1908.	Mackray, W. H., Kuala Lumpur.
1 April, 1910.	MacLean, L., Kuala Lumpur.
21 April, 1904.	Mahomed, Hon. Datoh, bin Mahbob, Johore Bahru, Johore.
8 Sept., 1903.	Makepeace, W., c/o Singapore Free Press, Singapore. (Council, 1914-1916: Hon. Librarian, 1910-1912: Hon. Treasurer, 1909; Vice-President, 1917).
15 April, 1908.	Main, T. W., Cheng Estate, Malacca.
10 Feb., 1916.	Mann, W. E., Hotel Pavillon, Samarang, Java.
12 Feb., 1902.	Marriott, Hon. H., The Treasury, Singapore. (Council, 1907-1908, 1910-1913, 1915-1917).
24 June, 1909.	Marsh, F. E., Municipal Offices, Singapore.
12 May, 1909.	Marshall, Harold B., Bintang Estates, c/o Messrs. F. W. Barker & Co., Singapore.
15 July, 1907.	*Marriner, J. T., Kuantan, Pahang.
5 May, 1914.	Martin, T. A., c/o Messrs. Kennedy and Co., Penang.
5 Nov., 1903.	Maxwell, W. George, c.m.g., Singapore. (Council, 1905, 1915: Vice-President, 1916).
16 Dec., 1909.	May, C. G., Deputy Colonial Engineer, Penang.
16 Feb., 1914.	Mead, J. P.
7 Feb., 1910.	Miller, T. C. B., Fairlie, Nassim Road, Singapore.
29 Sept., 1913.	Mollett, H. B., Tiroi P. O., Negri Sembilan.
8 Sept., 1909.	*Moulton, Capt. J. C., Fort Canning, Singapore.
11 Oct., 1915.	*Mundell, H. D., c/o Messrs. Sisson and Delay, Singapore.
15 June, 1911.	Munro, R. W., Morib, Selangor.
17 Feb., 1913.	Murray, Rev. W., m.a., 1, Gilstead Road, Singapore.
10 Feb., 1916.	Myers, Frank H., Asiatic Petroleum Co., Singapore.
22 March, 1917.	Nagle, Rev. J. S., m.a., Principal, Anglo-Chinese School, Singapore.

8 Sept., 1909.	Nathan, J. E., Raub, Pahang.
25 Feb., 1910.	Niven, W. G., 11, Derby Crescent, Kelvinside, Glasgow, Great Britain.
9 May, 1900.	Norman, Henry, Kelantan.
5 Jan., 1906.	Nunn, B., Malacca.
26 Jan., 1911.	O'May, J., Kuala Kangsar, Perak.
10 Feb., 1916.	Ong Boon Tat, 29, South Canal Street, Singapore.
17 Feb., 1913.	Overbeck, H., Trial Bay, N. S. W., Australia.
2 Feb., 1914.	Panyarjun, Samahu, The Royal State Railways Dept. Standard Gauge, 196, Hluang Road, Bangkok, Siam.
27 Oct., 1908.	Parr, The Hon. C. W. C., Residency, Kuala Lipis, Pahang.
20 Oct., 1909.	Peacock, W., England.
22 March, 1917.	Pears, R., c/o Messrs. F. W. Barker & Co., Singapore.
4 Jan., 1910.	Peirce, R.
5 May, 1914.	Pepys, W. E., Pasir Puteh, Kelantan.
— 1878.	†Perham, the Ven. Archdeacon J., Chard, Somerset, England.
26 Oct., 1917.	Perkins, D. Y., Drew and Napier, Singapore.
25 Feb., 1910.	Pratt, Capt. E., Ystrad, Plymstock, Devon, England.
22 Jan., 1912.	Price, William Robert, B.A., F.L.S., Pen Moel, Chepstow, England.
22 March, 1906.	Pringle, R. D., The Y. M. C. A. Head quarters, London.
5 Oct., 1906.	Pykett, Rev. G. F., M. E. Mission, Kuala Lumpur.
3 May, 1915.	Raggi, J. G., Phlab Phla Jai Road, Bangkok, Siam.
21 Aug., 1917.	Rattray, Dr. M., 10, Riverside, Malacca.
10 Feb., 1916.	Rayman, L., Assistant District Officer, Kuala Lumpur.
27 Jan., 1910.	*Reid, Dr. Alfred, Parit Buntar.
27 Jan., 1910.	Reid, Alex., c/o Messrs. McAlister and Co., Singapore.
20 Oct., 1909.	Richard, D. S.
15 June, 1911.	Richards, R. M., The Caledonia Estate, Province Wellesley.
18 April, 1918.	Richie, C., The Sagga Rubber Estate, Siliau, F. M. S.
27 Jan., 1890.	†Ridley, H. N., C.M.G., F.R.S., 7, Cumberland Road, Kew Gardens, Surrey, England.

	(Council, 1894-1895: Hon. Secretary, 1890-1893, 1897-1911: Hon. Member, 1912).
26 Oct., 1917.	Ridout, H. E. Major-General D. H., C.M.G., General Officer Commanding, S. S.
14 Sept., 1911.	Robertson, G. H. M.
14 Aug., 1912.	Robertson, J., c/o Messrs. Guthrie and Co., Singapore.
16 March, 1911.	Robinson, H., c/o Messrs. Swan and Maclaren, Singapore. (Council, 1916-17).
17 March, 1904.	Robinson, H. C., The Museum, Kuala Lumpur. (Vice-President, 1909; 1913).
10 Feb., 1916.	Rogers, A., Public Works Department, Singapore.
22 Jan., 1896.	Rostados, E., Gali Rubber Estate, Raub, Pahang. (Council, 1901).
1 March, 1897.	*Rowland, W. R.
12 Feb., 1918.	Russell, P. C., Swan and Maclaren, Singapore.
7 April, 1909.	Sanderson, Mrs. R.
10 Feb., 1916.	†Sarawak, His Highness The Raja of, Kuching, Sarawak.
— 1885.	†Satow, Sir Ernest M., Beaumont, Ottery St. Mary, Devon, England.
22 Jan., 1896.	Saunders, Hon. C. J., Official Assignee, Singapore. (Vice-President, 1910-1911, 1914-1915: President, 1916).
17 March, 1904.	Schwabe, E. M., Cheras Estate, Kajang, Selangor.
27 Jan., 1910.	Scott, R., District Court, Singapore.
5 Oct., 1906.	Scrivenor, J. B., Batu Gajah, Perak.
26 March, 1888.	Seah Liang Seah, c/o Chop Chin Hin, Singapore.
12 April, 1915.	See Tiong Wah, c/o Hongkong and Shanghai Bank, Singapore.
12 Feb., 1918.	Sennett, C. W. A., War Trade Office, Singapore.
30 Jan., 1894.	Shellabear, Rev. Dr. W. G., D.D. c/o Board of Foreign Missions, 150, Fifth Avenue, New York City, U. S. A. (Council, 1896-1901, 1904: Vice-President, 1913: President, 1914-1915).
3 June, 1909.	Sims, W. A., c/o Commercial Union Assurance Co., Singapore.
22 March, 1917.	Shillitoe, G., Kuantan, Pahang.
20 May, 1912.	Smith, Prof. Harrison W., Massachusetts Institution of Technology, Boston, Mass., U.S.A.
27 Jan., 1910.	Song Ong Siang, c/o Messrs. Aitken and Ong Siang, Singapore.

27 Jan., 1910.	Spakler, H., Netherlands Embassy, New York, U. S. A.
10 Nov., 1909.	Steadman, V., c/o Messrs. Swan and Maclaren, 5, Raffles Place, Singapore.
24 May, 1910.	Steedman, R. S., Duff Development Co., Ltd., Kuala Tui, Kelantan.
27 Jan., 1910.	Still, A. W., c/o Straits Times, Singapore. (Council, 1914-1915).
13 Feb., 1917.	Stirling, W. G., Government Monopolies Department, Malacca.
3 May, 1915.	Strickland, Dr. C., Sungei Seput, Perak.
14 Sept., 1911.	Stuart, E. A. G., Alor Star, Kedah.
24 May, 1910.	Sturrock, A. J., Batu Gajah, Perak.
22 March, 1917.	Sumner, H. L., Inspector of Schools, Taiping, Perak.
26 Oct., 1917.	Swan, W. L., Pondok Tanjong, Perak.
22 Jan., 1912.	Swayne, J. C., Kuching, Sarawak.
12 Feb., 1918.	Sykes, G. R., Import and Export Office, Singapore.
4 June, 1908.	Tan Cheng Lock, 59, Heeren Street, Malacca.
16 June, 1913.	Taylor, Lt. Clarence J., King's Own Yorkshire Light Infantry, 48th Street, Basrah, Mesopotamia.
26 Oct., 1917.	Tennent, M. B., Eliot Vale House, Blackheath, London.
14 Aug., 1914.	Tracy, F. D., c/o The Standard Oil Co., Penang.
18 April, 1918.	Valpy, G. C., Official Assignee Office, Singapore.
14 Aug., 1887.	van Beuningen van Helsdingen, Dr. R., 484/2, Bukit Timah Road, Singapore. (Hon. Librarian, 1914-1915).
3 June, 1909.	Ward, Hon. A. B., Kuching, Sarawak.
10 Feb., 1916.	Watkins, Mrs. Legrew, c/o Messrs. Watkins & Co., Singapore.
21 Aug., 1917.	Watson, J., Kuala Lipis.
13 Jan., 1916.	Watson, J. G., Forest Department, Kuala Lumpur.
18 Oct., 1916.	Watson, Dr. Malcolm, Klang, Selangor.
27 Jan., 1910.	Weld, F. J., The Residency, Pahang.
15 July, 1907.	Welham, H., c/o The Straits Echo, Penang.
27 Jan., 1910.	Whitehead, C. B., Police Office, Butterworth, Province Wellesley.
28 Oct., 1912.	Williams, F., Rose Cottage, St. Agnes, Cornwall, England.
27 Jan., 1910.	Williams, S. G., Municipal Offices, Singapore.
27 Jan., 1910.	*Winkelmann, H., Malacca Street, Singapore.

24 Nov.,	1904.	Winstedt, R. O., Kuala Lumpur.
25 Feb.,	1910.	Wolferstan, L. E. P., The Residency, Malacca.
28 May,	1902.	Wolff, E. C. H., The Secretariat, Singapore.
4 June,	1908.	*Wood, E. G., Taiping, Perak.
16 June,	1913.	Wood, W. L., The Selborne Plantation Co., Reserve Estate, Sunkai, Perak.
21 Sept.,	1916.	Woollett, G. F. C., Klagaw, Labuk and Sugut District, B. N. B.
14 Sept.,	1911.	Worsley-Taylor, F. E., c/o Messrs. Vade and Co., Singapore.
12 April,	1915.	*Worthington, A. F., Kuantan, Pahang.
5 May,	1914.	Wyley, A. J., Lebong Tandai, Benkoelen, Sumatra.
26 Oct.,	1917.	Yates, Capt. W. G., West Kent Regiment, Tanglin Barracks, Singapore.
26 April,	1916.	Young, E. Stuart, Kinarut Estate, via Jesselton, B. N. B.
24 Nov.,	1904.	*Young, H. S., Bau, Sarawak.

RULES

of the Straits Branch

of the

Royal Asiatic Society.

I. Name and Objects.

1. The name of the Society shall be 'The Straits Branch of the Royal Asiatic Society.'

2. The objects of the Society shall be:—

(a) The increase and diffusion of knowledge concerning British Malaya and the neighbouring countries.

(b) the publication of a Journal and of works and maps.

(c) the formation of a library of books and maps.

II. Membership.

3. Members shall be of three kinds—Ordinary, Corresponding and Honorary.

4. Candidates for ordinary membership shall be proposed and seconded by members and elected by a majority of the Council.

5. Ordinary members shall pay an annual subscription of $5 payable in advance on the first of January in each year. Members shall be allowed to compound for life membership by a payment of $50.

6. On or about the 30th of June in each year the Honorary Treasurer shall prepare and submit to the Council a list of those members whose subscriptions for the current year remain unpaid. Such members shall be deemed to be suspended from membership until their subscriptions have been paid, and in default of payment within two years shall be deemed to have resigned their membership.

No member shall receive a copy of the Journal or other publications of the Society until his subscription for the current year has been paid.

7. Distinguished persons, and persons who have rendered notable service to the Society may on the recommendation of the

Council be elected Honorary members by a majority at a General meeting. Corresponding Members may, on the recommendation of two Members of the Council, be elected by a majority of the Council: in recognition of Services rendered to any Scientific institution in British Malaya. They shall pay no subscription: they shall enjoy the privileges of members except a vote at meetings, eligibility for office and free receipt of the Society's publications.

III. Officers.

8. The officers of the Society shall be:—

A President.

Three Vice Presidents, resident in Singapore, Penang and the Federated Malay States respectively.

An Honorary Treasurer
An Honorary Secretary.
An Honorary Librarian.
Four Councillors.

These officers shall be elected for one year at the annual General Meeting, and shall hold office until their successors are appointed.

9. Vacancies in the above offices occurring during any year shall be filled by a vote of majority of the remaining officers.

IV. Council.

10. The Council of the Society shall be composed of the officers for the current year, and its duties and powers shall be:—

(a) to administer the affairs, property and trusts of the Society.

(b) to elect ordinary and corresponding members and to recommend candidates for election as Honorary members of the Society.

(c) to obtain and select material for publication in the Journal and to supervise the printing and distribution of the Journal.

(d) to authorise the publication of works and maps at the expense of the Society otherwise than in the Journal.

(e) to select and purchase books and maps for the Library.

(f) to accept or decline donations on behalf of the Society.

(g) to present to the Annual General Meeting at the expiration of their term of office a report of the proceedings and condition of the Society.

(h) to make and enforce by-laws and regulations for the proper conduct of the affairs of the Society. Every such bye-law or regulation shall be published in the Journal.

11. The Council shall meet for the transaction of business once a month and oftener if necessary. Three officers shall form a quorum of the Council.

V. General Meetings.

12. One week's notice of all meetings shall be given and of the subjects to be discussed or dealt with.

13. At all meetings the Chairman shall in the case of an equality of votes be entitled to a casting vote in addition to his own.

14. The Annual General Meeting shall be held in February in each year. Eleven members shall form a quorum.

15. (i) At the Annual General Meeting the Council shall present a Report for the preceding year and the Treasurer shall render an account of the financial condition of the Society. Copies of such Report and account shall be circulated to members with the notice calling the meeting.

(ii) Officers for the current year shall also be chosen.

16. The Council may summon a General Meeting at any time, and shall so summon one upon receipt by the Secretary of a written requisition signed by five ordinary members desiring to submit any specified resolution to such meeting. Seven members shall form a quorum at any such meeting.

17. Visitors may be admitted to any meeting at the discretion of the Chairman but shall not be allowed to address the meeting except by invitation of the Chairman.

VI. Publications.

18. The Journal shall be published at least twice in each year, and oftener if material is available. It shall contain material approved by the Council. In the first number in each year shall be published the Report of the Council, the account of the financial position of the Society, a list of members, the Rules, and a list of the publications received by the Society during the preceding year.

19. Every member shall be entitled to one copy of the Journal, which shall be sent free by post. Copies may be presented by the Council to other Societies or to distinguished individuals, and the remaining copies shall be sold at such prices as the Council shall from time to time direct.

20. Twenty-five copies of each paper published in the Journal shall be placed at the disposal of the author.

VII. Amendments to Rules.

21. Amendments to these Rules must be proposed in writing to the Council, who shall submit them to a General Meeting duly summoned to consider them. If passed at such General Meeting they shall come into force upon confirmation at a subsequent General Meeting or at an Annual General Meeting.

Affiliation Privileges of Members.

Royal Asiatic Society. The Royal Asiatic Society has its headquarters at 22 Albemarle Street, London W., where it has a large library of books, and MSS. relating to oriental subjects, and holds monthly meetings from November to June (inclusive) at which papers on such subjects are read.

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JOURNAL

Jelebu Customary Songs and Sayings.

COLLECTED BY A. CALDECOTT,

WITH PREFACE AND NOTES BY R. O. WINSTEDT.

These *tĕromba* 'Songs of Origin,' and these 'Customary Sayings' *pĕbilangan adat*, as they are called in Negri Sembilan or *pĕpatah* to use their Minangkabau name, were collected by Mr. Caldecott in Jelebu, of which State he has written an adequate history (Papers on Malay Subjects; second series, No. 1: F. M. S. Govt. Press, Kuala Lumpur, 1912).

A great deal of material has been printed on the Minangkabau Malays of Negri Sembilan—Martin Lister's careful articles, Mr. Humphreys' Naning Proverbs and excellent Wedding Speech from Naning, papers by O'Brien and Hervey and Bland, and Messrs. Parr and Mackray's exhaustive "Rembau" have all been published in past Journals. Mr. Wilkinson, who had then never lived in Negri Sembilan, wrote an extraordinarily illuminating introduction to the *adat pĕrpateh* in "Law II" in "Papers on Malay Subjects." Many of the articles that have appeared overlap, and the present collection is no exception. But all is grist to the mill of comparative method. "Knowledge is knowledge of relations,"—especially in the Minangkabau world!—and this paper has profited by comparison with those earlier articles; as well as with the *adat* of Minangkabau and its Sumatran colonies as delineated in Willinck's "Het Rechtsleven bij de Minangkabausche Maleiers" (Leiden, 1909) and in the series of volumes on Malayan custom published by "Het Koninklijk Instituut voor de Taal-, Land en Volkenkunde van Nederlandsch-Indië" ('s-Gravenhage) and entitled "Adatrechtbundel."

The comparative method has helped, for example, to explain the line *yang bĕrsĕsap, yang bĕrjĕrami* which puzzled the authors of "Rembau;" it has proved that for their impossible *bĕrsa-orangan* the Minangkabau word *pĕrsuarangan* (common enough in Negri Sembilan) should be restored; it has shown us that for *gĕmok bĕrpupok* on p. 39 of Mr. Caldecott's "Jelebu" should be read *gĕmok di-pĕrgĕpokkan*.

It may be said that textual points are of dilettante interest. Well, the comparative method helps also to reveal how fundamental principles of very practical importance are apt to be warped by chiefs biassed in some particular case in the local court.

Sa-kali ayer gĕdang
Sa-kali tĕpian bĕranjak;
Sa-kali gĕdang bĕrganti,
Sa-kali adat bĕrubah.[*]

"Every time a flood comes,
Landing-places shift;
Every time a chief succeeds,
Custom changes."

So runs a Minangkabau saying, and local wit has satirized the custom of the four important States of the Negri Sembilan:—

Pioh pilin tangkai jĕring adat Rĕmbau;
Bĕrpusing adat Jĕlĕbu bagai kinchir;
Ĕntah-lah, hai! adat Sĕmujong;
Bĕrya bĕrtidak adat Johol.

"Custom in Rembau is knotty and twisted as the stem of the *jĕring;*
In Jelebu it goes round like a water-wheel;
It is doubtful in Sungai Ujong;
It is contradictory in Johol."

But Malays recognize, as European students have failed often to recognize, that despite this and despite modifications admitted to make the *adat* keep pace with the times, at bottom there is only one *adat Minangkabau*:—

adat datar, pĕsaka suatu.

And so well is it enshrined in old-world sayings that deviations from it can be detected easily enough. European enquirers have been too apt to accept every interested party's interpretation as correct and peculiar to his State; instead of seeking for the catholic interpretation of saying or custom:—

sa-lengkong alam Minangkabau

"throughout the circle of the Minangkabau world," where the custom has been so wonderfully conserved through centuries, even by the most distant colonists from that upland home.

For instance. On pp. 70 and 72 of "Rembau," it is stated:—

"If misfortune is all his bachelor life brings him, then (a man's) family is responsible for his debts......These duties of a mother to her son arise from the principle that the holder of ancestral property is responsible for the life and blood of all members of the family.........Under Malay rule an insolvent debtor became the slave of his creditor: he paid his debts in his body. The settlement of his debts alone preserved his free life and hence became a duty of his mother's family. The obligation of payment extended not only to the *private debts* of the bachelor, his unpaid bills, his less happy speculations and his losses at the gaming table—but also to the *utang adat* (and *utang pěsaka.*)" Now this is true still so far as *utang adat* and *utang pěsaka* are involved. Is it true to-day of a bachelor's irresponsible debts? Certainly the *adat tanggong-měnanggong* is not so construed in Johol or in Jelebu or in Minangkabau itself. Yet judgment was once given on appeal against a Rembau's man's unfortunate female relation, the judge being loathe to reject evidence collected by the "intelligent enquiry of the local magistrate:" though in a later case of the same kind, another judge derided such an interpretation as ludicrous and opposed to principles of equity, adding caustic comments on the *adat* in general.

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[*] The N. S. version reads *pasir hanyut* for *tĕpian bĕranjak* and *raja* for *gĕdang* in the third line.

The Court, unlike the authors of "Rembau," did not recognize that honest involvency does not now entail imprisonment or affect the liberty of the debtor, so that the axiom *nyawa darah pulang ka-waris* no longer applies. Apart from that, where land speculations have undone a man, one might contend that rules framed by a frugal pastoral people did not contemplate comparatively large speculations in rubber or tin. And again private individualistic dealings in land would have been quite impossible in a strictly communal society. And the *adat* is not an inelastic code of law but bows to altered conditions.* In any case, so far from conserving the *adat* whole, our criminal courts daily give judgments anathema to its principles. But is any of this special pleading necessary? Let us hear, what Willinck writes about the *adat tanggong-měnanggong* as interpreted in Minangkabau itself:—

"A Minangkabau Malay at all times can bind himself validly *ex contractu* only so far as his *harta pěncharian* go: *ex delicto* not only he but his whole family were bound in *adat* times—his family only if he himself could not pay for his misdeed or crime, in which case his family became liable for the smart-money according to the *adat tanggong-měnanggong.* So a whole tribe or *něgěri* could become liable for smart-money, when one of its people had committed a crime, and the criminal's relatives even might become debt-slaves of the avenger..........A Minangkabau Malay can never validly of his own self conclude bargains *ex contractu,* which affect *harta pěsaka*: if he contracts a bargain, no action thereon can be taken by the creditor against the man's family, but always only against the debtor and even then only against his *harta pěncharian*........ The principle difference the *adat* makes between debts *ex contractu* and debts *ex delicto* is this: a man's family is liable for the former only if they are incurred properly, that is, contracted by the head of the family after agreement (*sa-kata*) of its members; debts *ex delicto* were claimed *ipso jure* from the whole family, if the guilty member were unable or unwilling to pay."

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* *Vide* "Rembau," p. 69, 70; and with the growth of population in the tribes (*suku*), tribal exogamy is no longer observed everywhere.

Now that passage is perfectly clear, even though its application of terms of Roman law to the humble customs of Sumatran villagers must strike a note jarring to any ear sensitive to style and atmosphere. And Willinck's account holds good of Jelebu and of Johol. *Pusing anak Rĕmbau!* Did they circumvent that local magistrate? Anyhow, there is plenty of evidence to support rejection in practice of an interpretation absurd and opposed to equity.

As I said above, a great deal has been written on the customs of Negri Sembilan and a great mystery made of them. But we still lack the evidence of the people themselves, their customary sayings and maxims, their speeches on occasions of ceremony. Students generally have recorded only *disjecta membra* of the *adat.* Mr. Humphreys was the first to give us scholarly versions of long speeches. Now Mr. Caldecott gives us these *tĕromba* or 'songs of origin' and a coherent set of sayings. For a later Journal I am preparing a collection of speeches from the district of Kuala Pilah; and I hope also to print one of the several versions I have obtained locally of *Undang-Undang Minangkabau.* Only when sufficient Malay material has been recorded, can we expect to get a readable definitive and comparative account of Minangkabau custom in the Negri Sembilan.

We are indebted to Mr. J. E. Nathan for the explanation of several abstruse passages.

Songs of Origin
and
Customary Sayings

R. A. Soc. No 78

TĔROMBA.

I.

Allah bĕlum bĕrnama Allah,
Muhamad bĕlum bĕrnama Nabi;
Bumi bĕlum bĕrnama bumi,
Bumi bĕrnama pusat nĕgĕri;
Langit bĕlum bĕrnama langit,
Langit bĕrnama payong nĕgĕri;
Bumi itu sa-gĕdang talam,
Langit itu sa-gĕdang payong;
Gagak puteh, bangau hitam,
Dato' bujang, nenek gadis;
Sa-jaman raja jatoh tĕrdiri
Sa-jaman pĕnghulu jatoh tĕrpĕkur,
Sa-jaman lĕmbaga jatoh tĕrsila,
Tĕrbit adat dua tĕripar,
Ka-laut Tĕnggong[1], ka-darat Pĕrpateh,
Adat bĕrtĕntu, bilang bĕratur;
Bĕruntok bĕrharta masing-masing.
Buloh bilah, tanah di-tanam,
Bĕsi bĕrdĕnting, puntong bĕrasap,
Sa-bingkah tanah di-tanam,
Tumboh aur nan bĕrjijir.
To' Kali Padang Gĕnting,
To' Sĕnama[2] di-Suasa,
To' Kalifah di-nĕgĕri Tambang,
To' Mĕngkudum di-nĕgĕri Sumanik.
Di-sambut raja Pagar Ruyong;
Lalu ka-Siak, ka-(?) Siam, Jambi;
Lalu ka-Rokan, ka-Panalian;
Lalu ka-riak yang bĕrdĕrun,[3]
Tĕmpat aur yang bĕrsurat,
Tĕmpat pisau-pisau[4] hanyut,
Tĕmpat sialang bĕrlantak bĕsi[5];
Lalu durian di-takek Raja—

---

1 = Temenggong. 2 Indĕra Mah; vide note, p 16. It is pronounced in Minangkabau *Indome* 3 *Riak* ''ripples'' or is it some forgotten place-name?

4. We have followed the editor of the ''Undang-Undang of Moco-Moco'' in translating *pisau-pisau*: vide Vol. II ''Miscellanies'' (Bencoolen, 1822), p.5. A similar interpretation is given at Sri Menanti.

5. That paper also explains *Si-pisau-pisau hanyut*, *Sialang bĕrlantak bĕsi* and *Durian di-takek raja* as names of places, the last opposite to *Tanjong si-Malido*. *Sialang bĕrlantak bĕsi* is translated ''the honey-comb reached by means of iron pegs driven into the tree.'' There is no doubt that *sialang*

SONGS OF ORIGIN.

I.

Ere God was known to men as Lord
Or Muhamad as His Prophet,
Ere Earth was given the name of Earth,
When Earth was called the country's navel,
Ere sky was designated sky
When sky was called the world's umbrella:—
Earth no bigger than a salver,
Sky no larger than a sunshade:—
Crows were white and black were egrets;
Our first forebears, boy and maiden
Knew not yet the bond of wedlock;
When to earth a prince fell standing,
And the first of chiefs fell pensive,
And the first of tribal headmen
Fell in attitude of homage:—
Then arose two ways of custom,
One to seaward, that of Tenggong,
Landward one, that of Perpateh,—.
Custom sure with its set sayings,
Giving each his share and portion.
Bamboo laths were split for building,
Mankind tilled the earth primaeval,
Iron clinked and log-ends smouldered,
Clods were turned for tilth and planting,
Bamboo stems grew up in order.
To' Kali ruled in Padang Genting
To' Senama in Suasa,
To' Kalifah in land of Tambang,
In Sumanik To' Mangkudum;
The prince of Paggarruyong hailed it
And the custom went to Siak,
Then to Siam and to Jambi
To Rokan and to Panalian

---

here = "large trees on which bees have built a nest" (and such trees are still *pĕsaka* in Negri Sembilan); below, we get *si-balong* as a variant. And it is probable that the iron pegs were driven in as "climbing steps" and not as boundary-marks: though another customary phrase *lantak bĕrtukul* = "the boundary-marks that are hammered in," *not* "the boundary posts that are beaten," as the authors of "Rembau" (Journal 56, p. 108 XXIII) translate it, if by that rendering they allude, as one would infer, to "beating bounds":—their note on p. 47 is correct.

Bukan raja sa-barang raja,
Raja asal, raja usul,
Raja mĕnitek dari langit,
Sama ada dĕngan kayu-kayuan,
Sama tumboh dĕngan rumput ranting;
Kĕturunan raja bĕrdarah puteh:
Nan tĕgak mĕngangkat sĕmbah,
Nan dudok mĕnangkat sila;
Bĕri makan sa-jambar sa-orang;
Minum di-tabong bĕrpalut ĕmas,
Tidor di-tilam nan bĕrtĕkat.

Di-mana jalan Baginda Giri?
Di-baroh balai panjang.
Mana bĕnar adat tĕrdiri?
Di-Batipuh, Padang Panjang.

Siapa yang chĕrdek bijaksana?
Pĕrtama To' Pĕrpateh, kĕdua To' Tĕnggong,
Yang mĕngĕtahuï jalan dua tĕripar;
Nama jalan dua tĕripar,
Pĕrtama jalan karna Allah,
Kĕdua jalan ka-pada dunia.
Jalan Allah, pĕrtama mĕnguchap,
Kĕdua sĕmbahyang, kĕtiga zakat,
Kĕampat puasa, kĕlima naik haji.
Jalan ka-dunia itu,
Pĕrtama gong dan chanang,
Makan dan minum,
Sĕmanda-mĕnyĕmanda.

Kĕmĕndian maka di-bilang—

Sa-hĕlai akar yang putus,
Sa-bingkah tanah yang tĕrbalek,
Sa-batang kayu yang rĕbah;
Sa-batang kayu akan mĕlintang,
Sa-bingkah tanah akan pĕrmatang,
Sa-hĕlai akar akan bĕrikat.
Tanah-nya datar, pĕrmatang-nya lurus,
Orang ramai, padi mĕnjadi.

Kĕmudian

Raja bĕralam, pĕnghulu bĕrluak,
Suku bĕrlingkongan,
Ibu-bapa bĕranak buah,
Anak buah dudok bĕrsuku-suku.

And to sea-laved sounding beaches
Where were found the bamboo writings,
Roof-tree carved on water drifting,
Trees with spikes to climb for honey.

Then the Raja marked the fruit trees,
He a prince of no mean station,
He the first king, king primaeval.

Dropped he as the rain from heaven,
He with forest-trees coeval,
Old as grass at the beginning;
White the blood that in him flowed:
Erect men made him salutation,
Sitting yielded him obeisance;
Food men brought him, each a platter;
Drank he from a bamboo beaker
Overlaid with golden plating;
Slept on an embroidered mattress.

"Where is the path of the prince of Giri?"
  "On the river-side of the long palace."
"What proof is there of the creation of the custom?"
  "It came down to Batipuh in Padang Panjang."

Who the wise men and the clever?
First Perpateh, second Tenggong,
Who knew well the kindred custom,
First the custom God inspireth,
Second that of worldly teaching.

The way to God is, first, the *credo,*
Second prayer, the third almsgiving,
Fasting fourth, and fifth the *haj*:
The worldly way is gong and clapper
Calling men to food and liquor,
To marry and to take in marriage.

After comes the saying.—

A broken root, a clod turned upward,
A fallen tree to serve as barrier,
The upturned clod to bank the rice-field,
The trailing stem to bind together.
Flat the plain and straight the bankings,
Thick the folk and rich the harvest.

Then the prince was given his kingdom,
The chief his shire, the tribe its limits,
The village elders their dependants;
Men were then by tribes divided,
And the tribes were twelve in number.

Bĕrapa suku-nya? Dua-bĕlas.
Kundur mĕnjalar ka-ulu,
Labu mĕnjalar ka-hilir,
Puchok-nya sama di-gĕntas
Buah-nya sama di-tarek:
Dĕkat rumah, dĕkat kampong,
Sa-kampong sa-pĕrmainan,
Sa-jamban sa-pĕrmandian.

II.

Sa-jaman si-gadis si-Mara Chindai,[1]
Mĕlapus[2] pulau tanah Mĕlayu;
Bĕrlayar-lah ia dĕngan pĕrahu-nya,
Lalu tĕrgalang-lah pĕrahu-nya:
Maka bĕrgĕlar-lah ia Batin Maha Galang[3]
Di-tengok-nya puchok mĕranti bĕranchaman,
Nĕgĕri pun sapĕrti ĕmbun.

Mĕngatur ia adat di-bukit itu:—
Sa-hĕlai akar putus akan pĕngikat,
Sa-batang kayu rĕbah akan bĕrlintang,
Sa-bingkah tanah tĕrbalek akan tanam-tanaman.
Maka bĕrjumpa ia dĕngan yang bĕrĕmpat;
Bĕrtanya Batin Maha Galang,
Mĕnjawab Dato' yang bĕrĕmpat
Di-atas bukit si-Untang-Untang Pĕnjaringan.[4]
"Hĕndak mĕnchari pamah yang lebar,
Hĕndak mĕnchari sungai yang mĕlurut;
Mĕminum ayer bungkul,
Bĕralas tidur daun lerek,
Bĕrbantalkan banir durian."

Bĕrkata lagi Dato' pada Batin,
"Turuni-lah londaran naga;
Nak tahu pulau yang mĕnumpu,
Tanyakan pada dĕnak;
Nak tahu padang yang luas,
Tanyakan pada bilalang;
Nak tahu pulau yang panjang,
Tanyakan pada barau-barau."

Putus sa-hĕlai akar,
Sa-bingkah tanah yang tĕrbalek,
Sa-batang kayu yang tumbang.
(Maka bĕrjumpa-lah dato' Batin mĕninggalkan adat)

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[1] Possibly *Mĕrah* or *Marah*, an old Sumatran title; but was it confined to males? [2] ? = *hapus* [3] = *Mĕrgalang* [4]. Ancient Palembang.

Then the marrow clambered upstream,
And the gourd grew trailing downstream,
Till their shoots were pruned together,
And their fruits together taken.
House to house grew near together,
Hamlet clustered on to hamlet,
For their games men used one common,
Used one shelter for their bathing.

II.

In the time of Mara Chindai
Isles Malayan all were flooded.
So he took to boat, went sailing,
Until lo! his boat was stranded
On our shore; and so we named him
"Mighty chieftain, from the wreckage."
On a hill he took his station,
Gazed he round upon the treetops
Clustering, crowded; and the country
Rolled, a misty sea, below him.
There did he ordain the custom:—
"A trailing stem shall serve for binding,
The fallen tree trunk for a barrier,
The clod upturned for tilth and planting."
Then the Batin Maha Galang
Met the Four, and asked them questions;—
On Palembang hills they answered.
"I would seek a spacious valley,
I would look for water courses,
Tho' I tap the palm for water,
Sleep with rustling leaves beneath me,
A tree buttress for my pillow."
Then the chiefs to him made answer,
"Follow down the dragon's traces,
And if thou would'st find the hillocks,
Islets footed in the marshland,
Jungle fowl shall be thy leaders:
Seekest thou the spreading meadow,
By the grasshopper be guided:
The spit of hills between the valleys
By the bulbul shall be shown thee."

So the trailing stems were severed,
So the clod of earth turned upward,
And the trees fell to the woodmen.
(Then they met the Batin chieftain
And forsook the older custom:)

Takek kayu Batin Jĕnang;
Hela tali pada Waris;
Putus tĕbus pada Undang;
Lantak bĕrtukul pada Lĕmbaga,

Maka di-tengok

Adat kampong yang bĕrsudut,
Sawah yang bĕrlopak,
Rumah yang bĕrkatak[1] tangga,
Bilek yang bĕrbunyi

Maka ada-lah adat

Tĕtĕkala nĕgĕri sudah lebar,
Orang pun sudah ramai,
Adat bĕrtĕntu, bilang bĕratur;
Bĕroleh kĕchil pada yang gĕdang,
Bĕroleh yang gĕdang pada yang tua.

Apa-lah kata orang tua?

"Dalam alam raja-nya,
Dalam luak pĕnghulu-nya,
Dalam suku lĕmbaga-nya,
Bĕrumpok masing-masing,
Bĕrharta masing-masing.
Harta orang jangan di-tarek,
Untok anak jangan di-bĕrikan."

Dudok kita bĕrpĕlarasan,
Bĕrdĕkat rumah, dĕkat kampong,
Boleh minta-mĕminta,
Akan jĕngok-mĕnjĕngok
Sakit dan pĕning.
Sa-jamban sa-pĕrulangan,
Sa-pĕrigi sa-pĕrmandian,
Sa-laman sa-pĕrmainan;
Tanah-nya datar, ayer-nya jĕrneh,
Muafakat-nya ĕsa.

III.

Usul-usul, asal-asal!
Asal jangan di-tinggalkan:—
Hujan bĕrpohon, kata bĕrasal,
Sakit bĕrmula, mati bĕrsĕbab:—

---

[1] *Katak* is said to = 'short-runged,' as opposed to the wide-runged bamboo ladders of temporary huts.

The jungle chiefs mark off the tree trunks;
The Waris drag the cord of survey;
The ruler of the shire, the Undang,
Settles payment for the portion;
The tribal headman hammers landmarks.

Next we see the jungle custom
Yield to custom of the hamlet:—
Holding dovetailed into holding,
Split in lots the ricegrown meadows,
Short-runged ladders fixed to houses,
Rooms with voice of men resounding.

So the men wax strong in number,
And the lands they till grow wider,
And the custom of the hamlet
Groweth to a broader custom,
Stablished custom with set sayings.
The grown hath lordship of the little,
O'er the grown the old have lordship.

Hark ye then! how say the old men?
"The king within his kingdom reigneth,
The chief within his shire commandeth,
The headman o'er his tribe presideth.
Each shall get his share and portion;
Take ye not the goods of others;
Squander not the children's birthright."

So we gathered close together,
Homestead clustering on homestead,
Neighbour marrying with neighbour,
Visiting in time of sickness;
Used one shelter for ablutions,
From one well drew bathing water;
For our pastimes used one common;
Level was our land, our water
Clear, and in our village councils
Trusted each his neighbour's promise.

III.

Origin of origins!
Desert we not our origin:—
Rain hath its fount, tradition its foundation,
Sickness hath its beginning, death its cause:

Asal jangan di-tinggalkan.

Ka-laut adat Dato' Tĕmĕnggong,
Ka-darat adat Dato' Mĕrpateh.

Ka-laut adat Dato' Tĕmĕnggong:—
Siapa mĕnjala, siapa tĕrjun,
Siapa salah, siapa bĕrtimbang;
Siapa bĕrutang, siapa mĕmbayar;
Siapa bunoh, siapa kĕna bunoh.

Ka-darat adat Dato' Mĕrpateh:—
Hutang nan bĕrturut, chagar bĕrgadai;
Chinchang pampas, bunoh bĕri balas.

Tĕrbit adat sa-ranah Pagar Ruyong,
Sa-lilit Pulau Pĕrcha,
Sa-limbang tanah Mĕlayu.
Sĕri Alam di-Minangkabau,
Sultan di-Pagar Ruyong;
Titah di-Sungai Tĕrap;
Indĕra Maha[1] di-Suasa;
Kali di-Padang Gĕnting,
Makhdum di-Sumanik.
Sengkat durian di-takek raja,
Si-balong bĕrlantak bĕsi[2];
Sengkat si-lukah-lukah hanyut,
Sengkat pĕrentahan Pagar Ruyong.

Sa-jaman Dato' bujang, nenek gadis,—
Puteh kĕpala tĕtĕkala itu;
Gagak puteh, bangau hitam.
Ayer-nya jĕrneh, orang-nya ramai,
Adat sĕntosa di-dalam nĕgĕri.
Buloh bilah, puntong bĕrasap,
Bĕsi nan bĕrlocheng.
Sa-hĕlai akar akan pĕrikat,
Sa-bingkah tanah akan pĕnggalang.

Kĕmudian dudok pandang-mĕmandang:
Pandang ka-darat, mĕranti yang bĕrsanggit dahan,
Pandang ka-hulu gaung nan dalam,
Pandang ka-hilir sungai nan mĕlurut,
Pandang ka-baroh lĕpan nan luas.

---

[1] Jelebu reciters say *Antara mudek*, which is obviously corrupt. *Undang-Undang, Moko-Moko* read اندرما and romanize it *Inder Mah*: the *Tuan Panjang* of Saruasa is intended: see, for instance, p. 8 of van der Toorn's *Tjindoer Moto* (Batavia, 1886.) At Sungai Trap was the Bendahara.

[2] *Vide* note p. 8 *supra*. *Si-balong=balong ijau* "a large tree, *Epiprinus malayanus*."

Forget we not our origin.

To seaward was the custom of Dato Temenggong,
To landward was the custom of Dato Merpatih.

Now the law of Dato Temenggong to seaward is this,
Who casts the net shall jump to drag it in;
Who commits an offence shall compensate;
Who owes shall pay; who slays shall be slain.

And the law of Dato Merpateh to landward is this:—
A debt adheres to the tribe of the debtor;
A mortgage becomes a lien on the tribal land;
Who wounds shall pay smart money, who kills shall give
    restitution.

The custom arose in Pagar Ruyong,
It engirdled Pulau Percha,
It throve in the Malayan regions.
Glory of Minangkabau,
Was the Sultan in Pagar Ruyong;
Mandates issued from Sungai Trap;
Indra Maha was at Saruasa:
The Kali was at Padang Gĕnting,
The Makhdum in Sumanik.
As far went the custom as the trees,
The fruit-trees marked by the răja for his people,
The trees with spikes to climb for honey
As far as fish traps drifted,
Up to the kingdom of Pagar Ruyong.

In days ere our ancestors were wedded,
When the hair of man was white,
And crows were white and egrets black;
Waters were clear and men were many,
And custom brought peace on the land;
The bamboo was split, the log smoked in the clearing,
And the clink of iron was heard,
The trailing creeper served for binding,
A turned-up clod for barrier.

Then the folk sat looking about them:—
Hillward rustled the branches of forest trees;
Upstream were deep ravines;
Downstream the flowing river;
Below the spreading meadows.

Turun di-Pagar Ruyong raja bĕrdarah puteh,
Bĕrdua dĕngan Batin Mĕrgalang;
Lalu naik gunong Rĕmbau,
Lalu turun Sĕri Mĕnanti.
Kĕmudian dudok bĕrsuku-suku,
Suku-suku nan dua-bĕlas
Suku nan bĕrtua, bĕribu-bapa, bĕrlĕmbaga:
Kĕmudian dudok bĕrdĕkat kampong,
Laman sa-buah sa-pĕrmainan,
Jamban sa-buah sa-pĕrulangan,
Pĕrigi sa-buah sa-pĕrmandian.

There descended in Pagar Ruyong together
A king of white blood and Batin Mergalang;
They journeyed and climbed the Rembau hills;
They passed down to Sri Menanti.
Then men dwelt there in tribes, the twelve tribes:—
A tribe has its old men, its elders, and its headman.
Afterwards their homes grew close together;
For their games men used one common;
Used one shelter for their bathing;
From one well drew their drinking water.

PĔBILANGAN ADAT.

We are Minangkabau folk.

Kita anak Minangkabau,
Yang di-bawah langit dan di-muka bŭmi,
Sa-lingkar Gunong Bĕrapi,
Sa-hingga Pintu Raya hilir,
Hingga Si-Lĕgundi mudik,
Yang bĕrnama tanah Sumatĕra,
Pulau Andĕlas.

Not till the pastoral age did we get our custom of entail.

Sa-bingkah tanah tĕrbalek,
Sa-hĕlai akar yang putus,
Sa-batang kayu rĕbah—
Adat dĕngan pĕsaka bĕlum di-adakan.

Tĕtĕkala
Kampong sudah bĕrsudut,
Sawah sudah bĕrjinjang,
Puchok sudah mĕliok,
Pinang sudah bĕrjijir
Adat dĕngan pĕsaka di-adakan, ia-itu—

and our political & social system;

Alam bĕraja,
Luak bĕrpĕnghulu,
Suku bĕrtua
Anak buah bĕribu-bapa.
Orang sĕmanda bĕrtĕmpat sĕmanda.[1]

Kunchi bini laki,
Kunchi sĕmanda tĕmpat sĕmanda,
Kunchi anak buah ibu bapa,
Kunchi luak pĕnghulu,
Kunchi alam raja.

with grades and precedents

Adat yang bĕrjanjang[2] naik, bĕrtangga turun;[3]
Bĕrlukis, bĕrlĕmbaga,[4]
Bĕrtiru,[5] bĕrtĕladan,

and a widening scope for our customs.

Pulai nan bĕrpangkat naik,
Manusia bĕrpangkat turun.

---

[1] Sometimes are added:

Gĕdong bĕrtaukeh, parit bĕrpoyang,
Po bĕrbun, gĕlanggang bĕrjuara.
'Shops have keepers, mining sluices diviners to open them,
Gaming tables croupiers, cock-pits trainers of cocks.'

[2] *Janjang* "the steps of a ladder—to the *pĕran* or roof loft."

[3] I.e. Society and the political constitution has different grades. A *titah* will go downwards through the Undang to the Penghulus, through the Penghulus to the Lembagas, through the

CUSTOMARY SAYINGS.

We are children of Minangkabau,
Who dwell beneath the sky and on the face of the earth.
Of the land around Gunong Mĕrapi,
As far downstream as Pintu Raya,
As far upstream as Si-Lĕgundi,
The land that is called Sumatra,
The island of Andalas.

When the first clod was upturned
And the first creeper severed,
And the first tree felled—
Our custom and system of entail were not yet established.

When holding was dovetailed into holding,
When our stretches of rice-field were made,
When the shoots of our plants swayed in the breeze,
When our betel-palms grew up in rows
Then were established our custom and system of entail.

Our world got a prince,
Our shires chieftains,
Our tribes elders,
Our families headmen,
And the married man found a place with the family of his wife.

Warder of the wife is the husband,
Warder of the husband his wife's family,
Warders of the family its elders,
Warderd of the shire the chieftain,
Warder of the world the king.

Procedure under the Custom is to ascend and descend by grades,
As men go up and come down the rungs of ladders.
Custom with its lines and patterns,
Its precedents and instances.

The *pulai* tree broadens as it grows up,
Family trees as they descend.

Lembagas to the Buapas; and a petition to royalty should go upwards through the same stages. *Vide* "Adatrechtbundel, VI." p. 205-6, where a far-fetched interpretation is condemned and one similar to that accepted in N. S. upheld.

[4] *Lĕmbaga* = 'mould, matrix, pattern,' and the context shows clearly that it has that meaning here.

[5] Minangkabau *pĕpatah* read *bĕrtiru,* which we have adopted. The Jelebu reading is *bĕrturis.* For "Rembau's" *bĕrturas,* no support can be found in Minangkabau *pĕpatah* or Van der Toorn's "Woordenboek."

Each individual in our society has his peculiar duty,

Kambing biasa mĕmbebek,
Kĕrbau biasa mĕnguak,
Ayam biasa bĕrkokok,
Murai biasa bĕrkichau,
Pĕnghulu biasa mĕnghukumkan adat,
Alim biasa mĕnghukumkan shara‘,
Hulubalang biasa mĕnjarah,
Juara biasa mĕlĕpas,
Saudagar biasa bĕrmain bungkal tĕraju,
Pĕrĕmpuan biasa bĕrusahakan bĕnang dan kapas

which none may usurp;

Raja sa-kĕadilan,
Pĕnghulu sa-undang,
Tua sa-lĕmbaga,
Waris sa-pĕsaka,
Ibu- bapa sa-adat,
Tĕmpat sĕmanda satu shahadat,
Orang sĕmanda sa-rĕsam.[1]

and his prerogatives

Raja bĕrdaulat,
Pĕnghulu bĕrandika;
Raja bĕrtitah,
Pĕnghulu bĕrsabda;
Raja bĕrkhalifah,
Pĕnghulu bĕrsuku.
Undang bĕrkĕlantasan,
Lĕmbaga bĕrsĕkat.
Raja bĕrsĕjarah,
Pĕnghulu bĕrsalasilah,
Lĕmbaga bĕrtĕromba.

and honour in his own place.

Raja bĕrdaulat dalam alam-nya,
Pĕnghulu bĕrnobat dalam suku-nya,
Buapa bĕrnobat dalam anak-buah-nya,
Orang banyak bĕrnobat dalam tĕratak-nya.

Obedience to whom obedience is due.

Salah hamba ka-pada tuan,
Salah murid ka-pada guru,
Salah anak ka-pada bapa,
Salah bini ka-pada laki.

Titah di-junjong sa-pĕnoh-pĕnoh kĕpala,
Sabda di-pikul sa-untok-untok bahu.

Covenant makes men of one mind.

Kĕlĕbehan umat dĕngan muafakat,
Kĕlĕbehan nabi dĕngan makjizat;
Bulat ayer karna pĕmatong,[2]
Bulat manusia karna muafakat.

---

[1] *I.e.* the *adat pinang-mĕminang.*

[2] At Sri Menanti *gopong* ‘a coconut-shell water vessel’ takes the place of *pĕmatong.*

Goats are wont to bleat,
Buffaloes to low,
Cocks to crow,
Magpie-robins to whistle,
Chiefs to administer customary law,
Religious authorities Muhamadan law,
Captains to make raids,
Trainers to fly cocking-cocks,
Traders to finger weights and measures,
Women to be busy with cotton and thread.

The king carries out his justice,
The chief his law,
The tribal headman his ancestral rights,
The inheritors their entail,
Heads of families their custom,
The bride's kin their sworn profession,
The husband his conventions.

A king is sacrosanct,
A chief honourable.
A king issues mandates,
A chief commands.

A king is God's deputy,
A chief his tribe's[1].
The powers of a chief are wide,
The powers of a tribal headman restricted.
A king has his royal annals,
A chief his genealogical tree,
A tribal headman his song of origin.

The king is sacrosanct within his realm,
The chief receives recognition within his tribes,
The heads of families within their dependants,
Common folks in their own homes.

Slaves can offend against their masters,
Pupils against their teachers,
Children against parents,
Wives against husbands.

We lift our hands high in homage to execute the
  king's mandates.
We put our shoulders to carry out a chief's commands.

The greatness of men lies in taking counsel together;
The greatness of prophets in performing miracles.
As a bamboo conduit makes a round jet of water,
So taking counsel together rounds men to one mind.

---

[1] Or ? "rules his tribe."

Custom is based on covenant.

Tĕtĕkala kĕchil bĕrnama muafakat,
Tĕtĕkala bĕsar bĕrnama adat:
Si-raja adat ka-pada muafakat.
Ayer mĕlurut dĕngan bandar-nya,
Bĕnar mĕlurut dĕngan pakat-nya,
Nĕgĕri bĕrtumboh dĕngan adat-nya.

But covenant alone may be partial.

Muafakat lalu di-dalam gĕlap,
Adat lalu di-tĕngah tĕrang.
Hilang adat karna muafakat.

We live secure in the lap of our custom:

Hidup di-kandong adat,
Mati di-kandong bumi.

and transgression breaks the transgressor.

Bujur lalu, lintang patah:
Makanan adat dĕngan pĕsaka.

Custom speaks with the voice of greatest authority:

Kata orang kata bĕrchalun,[1] kata bĕrbalok.
Kata pĕgawai kata bĕrubong.
Kata hulubalang kata tunggal.
Kata undang kata pĕrhiasan.
Kata raja kata bĕrliput.
Kata maalim[2] kata hakikat.
Kata adat kata yang bĕnar.

prescribing the way we must follow,

Ka-laut mĕnuju alur;
Ka-darat mĕnuju bĕnar;
Bĕrtahun mĕnuju musim,
Kalau ta' mĕnuju alur, tumpat karam;
Ka-darat ta' mĕnuju bĕnar, siar bakar;
Bĕrtahun ta' mĕnuju musim, sambang hangus.

and our attitude to life;

Bĕrdiri mĕninjau jarah,
Dudok mĕraut ranjau,
Mĕnyĕrodok galas lalu,
Mĕnyĕlam minum ayer,
Lain bidok lain galang.

and reminding us of the penalties of folly.

Kaki tĕrdorong, badan binasa;
Chĕpat tangan, dapat utang;
Mulut tĕrkata-kata, ĕmas pada;
Tĕrpijak bĕnang arang, hitam tapak.

---

[1] "Disputatious."

[2] Jelebu reads *ilmu*, obviously a corruption of the usual Minangkabau version, which we have adopted.

What in the beginning are covenants
Grow up into customs:
Custom is lord over covenants.
Water proceeds along water-ways,
Sanction proceeds from covenant;
A country grows up with its customs.

Covenants proceed in the dark,
Custom walks in the light:
Covenants can destroy custom.

In life we are lapped in custom,
In death we are lapped in the earth.

Length-ways one gets through, cross-wise broken.
Our custom of entail is our sustenance.

The words of common folk are contentious,
The words of officials weighed,
The words of captains terse,
The words of chiefs elaborate,
The words of the ruler comprehensive,
The words of the wise true,
The words of the custom sanctioned.

At sea aim for the channel,
On land aim at the sanctioned way,
For planting-rice, at the due season.
Miss the channel and your boat founders,
Miss the sanctioned way and you get burnt,
Miss the season and your crop is parched and fails.

Stand up to look out for raiders,
Sit down to whittle a stake,
Stoop to get your shoulder-wallet through,
Put your mouth in the stream to drink water.
Suit your rollers to your boat.

A slip brings destruction,
An open hand debts,
A quick tongue fines.
Tread on pitch and your sole is defiled.

ustom omprises hree ranches:—

Kěputusan adat tiga pěrkara:—

1) the law f nature,

Pěrtama adat mansiang[1] ia-itu těrjali,

2) the law f man,

Kědua adat tiang ia-itu adat běrkěbulatan,

3) the law f God.

Kětiga adat kitabu'llah ia-itu hukum Kuran

ts function s different rom that f Muhammadan law.

Pada adat měnghilangkan yang burok,
Měnimbulkan yang baik;
Pada shara' měnyuroh běrbuat baik,
Měninggalkan běrbuat jahat.

Adat běrsěndi hukum,
Hukum běrsěndi kitabu'llah.
Kuat adat, ta' gadoh hukum,
Kuat hukum, ta' gadoh adat.
Ibu hukum muafakat,
Ibu adat muafakat.

And the evidence required by it different.

Adat běrtanda, hukum běrsaksi;
Adat yang tiba ka-gělap měnjala,
Tiba ka-těrang měnumpu;
Tinggi di-sigai,
Kěras di-takek,
Lěmbut di-sudu.

Sah, kata adat,
Apa-bila těrtanda, těrbeti;
Těrkějar, těrlělah;
Těrpakok, těrpauk;
Děkat, těrtunjokkan;
Jauh, těrkatakan.

Custom accepts circumstantial evidence of theft

Undang-undang churi:
[illegible] dua-bělas—
[illegible] těrpalang,[2] dinding těrětas,
Těrkějar těrlělah,
[illegible] těrampas,
Těrchinchang těrpakok,
Di-gědabang, di-gědabekkan,[3]
Di-sěrang, di-kělěkai,
Nama kinchang kichoh,
Běranggur, kalak-kalak,[4]
Tiga kali ěmpat sa-puloh dua.

---

[1] E.g. *Patah tumboh* 'when an officer dies, a successor must be chosen' is *adat mansiang*: *hilang běrganti* 'if an officer vanishes, another must be chosen in his place' is *adat tiang*—for if a man goes into the forest and does not return, it is presumed by the *adat tiang* that he is dead.—A.C.

Custom may be split into three branches:—

Custom clear as the triangular rush in a rice-field,
Custom strong and round as a pillar, whereon all men agree,
Custom laid down in God's book, the law of the Koran.
It is for custom to suppress the wrong,
To bring the good to pass.
It is for religious Law to command righteousness
And bid men eschew evil.

Customary law hinges on religious law,
Religious law on the word of God.
If custom is strong, religion is not upset;
If religion is strong, custom is not upset.
Religious law is the offspring of covenant,
Customary law also the offspring of covenant.

Customary law requires signs of guilt,
Religious law calls for witnesses.
When customary law deals with circumstances obscure,
It throws a wide net to catch the offender;
In clear cases it has a sure footing;
If the problem be high, it uses a ladder,
If it be hard, it cleaves into it,
If it be soft, it ladles.
'There is a clear case' says custom,
When there is evidence of guilt and information laid,
When a man is chased from the scene of the crime and is found panting;
When there are hacks and cuts;
If evidence be at hand, it requires to be shown it,
If it be not at hand, it requires it to be related.

By the laws for theft
Twelve circumstances are forbidden:
To set a strut against a house-pillar, to rip open a partition;
To be chased and caught panting;
To be found with booty snatched or stolen by force;
To be found wounded and hacked;
To be found with fluttering heart or trampled foot-prints;
To be convicted of swindling and cheating;
To have transplanted and to give a crooked story,
For 3 × 4 = 10 + 2,
(And these twelve signs are circumstantial evidence).

---

[2] Cf. "Adatrechtbundel" VI, p. 398.

[3], [4] The translation is doubtful.

and of all crimes, so that men must walk warily.

Ĕnggang lalu, ranting patah.
Mara hinggap, mara tĕrbang.
Lalu hangus, surut layu.
Tĕrgesek kĕna miang,
Tĕrgĕgar kĕna ĕmbun

A criminal leaves traces of his crime and cannot explain his movements.

Bĕrsurih ba' si-pasin,[1]
Bĕrlondar ba' langkitang,
Bĕrbau ba' machang.
Ka-hulu ta' tĕntu gaung-nya,
Ka-hilir ta' tĕntu kuala.

'Where there is smoke, there is fire'—that is one of our legal maxims.

Mana anjing mĕnyalak, di-situ biawak mĕmanjat;
Mana tĕmiang tĕrĕntak, di-situ tanam-tanaman jadi;
Mana kayu tumbang, di-situ chĕndawan tumboh
Kilat bĕliong ka-pada kaki,
Kilat pisau ka-pada tangan,

We seek for perfect justice,

Chupak yang pĕpat,
Gantang yang piawi,
Bongkal yang bĕtul,
Tĕraju yang baik,[2]
Tiada boleh di-aleh lagi.

and fair sentences, deterrent but not vindictive

Tiba di-mata, jangan di-lĕlapkan;
Tiba di-pĕrut, jangan di-kĕmpiskan.
Ular di-palu biar mati,
Kayu pĕmalu jangan patah,
Tanah di-palu jangan limbang,
Lĕmah liat kayu akar,
Di-lĕntok mau, di-patah jangan.

Application must be made to the proper tribunal.

Mĕnumbok di-lĕsong,
Bĕrtanak di-pĕriok,[3]

Different cases must be tried

Ka-pada raja
  Hari malam, bulan (?) bĕrsirau,
  Kĕrbau bĕrlaga dalam kandang
Ka-pada undang
  Ayam hitam tĕrbang malam,
  Hinggap kayu bĕrdaun.
Ka-pada lĕmbaga
  Ayam puteh tĕrbang siang,
  Hinggap kayu mĕranting.

---

[1] Cf. "Adatrechtbundel" VI, p. 445.

[2] Malay casuists distinguish four points in these four lines = (1) = if the bench of judges be full (2) = if they have full

The branch breaks, as the horn-bill passes.
Where danger alighted, danger must fly away.
Pass through flames and you are scorched,
Retreat from them and you wilt.
Rub against the stem of a bamboo and you itch,
Shake it and you are sprayed with moisture.

Crime leaves its trail like a water-beetle,
Like a snail, it leaves its slime;
Like a horse-mango, it leaves its reek.
A stream that knows not its source nor its mouth,—
Like that is a man who cannot account for his doings.

A spot where a dog barks is the spot where the iguana
climbs,
A spot where the bamboos are uprooted, is a spot where
plants flourish,
A fallen tree is the place for mushrooms to grow.
The glint of an adze falls on a man's feet,
The glint of a knife on his hands.

The quart measure that is full,
The gallon measure that is true,
The weight that is just,
The scales that are even,
These cannot be upset.

What comes before your eyes—be not blind to it;
What comes to your mouth,—get fat on it.
If you strike a snake, kill;
But let not your stick be broken
Nor the ground dented by your blow;
Pliant but strong is a rattan,
Let it bend but not break.

Pound in a mortar,
Cook rice in a pot.
It is a case for the ruler's court,
When at night in the dark of the moon
Buffaloes fight in the byre.

It is a case for the chief's court,
When a black fowl flying by night
Settles in a leafy tree.

It is a case for the tribal headman's court,
When a white fowl flying by day
Settles on a leafless twig.

---

authority (3) = if the weight of evidence is sufficient (4) = if the judges are just.—A.C.

[3] These lines imply that complaints must be laid before the proper court and also that the punishment must fit the crime.

and different punishments imposed by different officers.

Tali pĕngikat dari-pada lĕmbaga,
Kĕris pĕnyalang dari-pada undang,
Pĕdang mĕmanchong dari-pada kĕadilan.
Tikam ta' bĕrtanya,
Panchong ta' bĕrkhabar.

The raja's power is almost unlimited.

Hukuman raja
Ĕnam-puloh ĕnam kupang,
Tujoh tahil, sa-paha,
Sa-kĕndi, sa-kĕndĕri,
Sa-isi lĕsong pĕsok,
Sa-ruas buloh tĕlang,
Sa-kochong lĕngan baju.[1]

Crimes against custom are—

Dahaga dahagi,[2]
Sumbang, salah,[3]
Rĕbut, rampas,
Siar, bakar,
Maling, churi,
Kichang, kichoh,[4]
Upas,[5] rachun,
Tikam, bunoh,[6]
Samun, sakal,—
Pantang ka-pada adat.

and certain evidence admittedly conclusive.

Upas rachun, sisa makan.

The penalties for wounding and for homicide.

Chinchang pampas;[7] bunoh bĕri balas,
Anak di-panggil makan,
Anak buah di-sorong 'kan balas.[8]

---

[1] In Muar the following lines are added:—
Sa-gantang ulang-aling,
Sa-pĕting tali bajak.

[2] "Opposition to and uproar against constituted authority"—Willinck, p. 847 and Van der Toorn's "Woordenboek." *Dĕrhaka chĕlaka*, which often precedes this line in N. S. is a paraphrase of it.

[3] *Salah* = *sĕsalahan* "fornication" and is reckoned constantly as a separate crime in Minangkabau lists of *salah dua-puloh*.

[4] *Kinchang* and *kichang* both occur: *v.* Van der Toorn's "Woordenboek." For *kichong* some Minangkabau MSS. read *lanchong* and explain it as including "embezzlement" unlike *kichoh* which means all other forms of "swindling."

[5] *Upas* = drugging with intent to render senseless but not to kill.

[6] *Bunoh* embraces wilful murder, culpable homicide, and accidental homicide.

The cord of arrest is the prerogative of the tribal headman,
The creese of execution the prerogative of the chief,
The headman's sword the prerogative of the king.

The extent of a raja's jurisdiction is—
Cents sixty and six,
Seven taels, one *paha*,
One kĕndi, one candareen,
The contents of a tiny mortar,
As much as a joint of giant bamboo can hold,
As much as will fill the sleeve of a coat.

Lese-majesté and disorder,
Irregular marriage and wenching,
Stealing by force and snatching,
Arson and burning,
Privy theft and open pilfering,
Swindling and cheating,
Drugging and poisoning,
Stabbing and slaying,
Robbery with violence, robbery with wounding,—
These are forbidden by custom.

To test drugs or poison, give the remnants of the dish to the suspect.

For wounding smart-money is the penalty,
For slaying the substitution of a person to the dead person's tribe.
The children of the murderer are invited to the feast of atonement,
And one of his tribal kin given to the tribe of the murdered man.

---

[7] Restitution was in ratio to the amount of blood shed. If the man wounded lost little blood, a fowl was given by his assailant, if much a goat: it was thought that no man could lose more than a goat's measure of blood and live. The animal was cooked and the flesh presented to the aggrieved party. The offender took half a cupful of blood of the animal slain, a handful of rice and three limes. He took the injured party to a stream or well and anointed his head first with blood, then with rice and finally with juice of the limes to cleanse away the unsavoury chrism of blood and rice!—A.C.

[8] "The nephew is offered as a substitute," Rembau, p. 112. This rendering is not clear. It could never be the child of the murderer's wife's sister or of the murderer's brother: but always the child of one of his female blood relations. The point is that the substitute must be of the murderer's own tribe.

An offence against marriage law.

Pělěsit dua sa-kampong,[1]
Ěnau sa-batang dua sigai
Mata tumboh tiada běrběneh,[2]
Sumbang ka-pada tabiat.
Adat měnuju ka-pada tanda.
Bila "Sah" kata adat tiang,
Janggal ta' boleh di-patoh lagi,
Salah ta' boleh di-hukum:[3]
Ia-itu suatu di-běri, dua di-ambil.

Penalties of illicit love.

Těrkurong mati,
Těrtanda běrutang.

Offences against public justice.

Kěpantangan adat,
Di-lindong di-ěndapkan.
Kěpějatian adat,
Di-těrang di-bandingkan.

Custom fixes the heritage of each section of the community.

Jalan raya, titian batu,
Bukit bukau,[4]
Rimba yang sunyi,
Gaung yang dalam,
Lěpan yang lebar,
Bandar yang sundai,[5]
Si-barau-barau yang punya.
Lubok dalam si-kitang-kitang yang punya.
Gaung guntong,
Bukit bukau
Waris dan pěnghulu yang punya.
Sawah yang běrjinjang,
Pinang yang gayu,[6]
Nyiur yang saka,
Lěmbaga yang punya.
Anak buah yang běrchalun,
Ibu-bapa yang punya.
Orang sěmanda yang gadoh běrsuarang,
Anak buah yang punya.
Lingkongan běndul yang ěmpat,
Orang sěmanda yang punya.
Jalan raya titian batu,
Raja yang ěmpunya.

---

[1] This, like the next line, signifies union with another woman of the same tribe as one's wife during her life. "Rembau," p. 79 states that the offence is "classed together with the possession of a *pělěsit* as *pantang*":—the authors may have been thinking of some other saying, as our lines, which give the only version known in Jelebu and Johol, cannot be so construed.

[2] i.e. 'bastards.'

Two familiar spirits in one household,
Two ladders to one sugar-palm,
Sprouts without seed
Are offences against morals.
Custom looks for signs of guilt;
When custom declares the offence proved,
It is not a peccadillo to be mildly corrected.
Nor can recourse be had to religious law—
For this crime of taking two brides when a man has been given one.

Trapped with his mistress, the intriguer is done for;
Leave his trace in her house and he will be fined.

It is forbidden by custom
To conceal and abet.
It is approved by custom
To bring to light and compare facts.

The high way with its stepping stones,
Hills and hill-bases,
Lonely forest,
Deep ravines,
Broad plains,
Sloping water-courses
Belong to the birds.
Deep pools
To the fishes.
Ravines and valleys,
Hills and hill-bases
Belong to the territorial tribe and their chief.
Stretches of rice-field,
Old betel-nut palms,
Ancestral coconuts
Belong to the tribal headmen.
Disputes among their families
Are the province of the elders.
When a husband disputes about the property acquired by his own and his wife's joint labour
It is the province of his family.
Within the four threshold-beams of his house
Is a husband's province.
The high road with its stepping stones
Belongs to the king.

---

[3] *Patoh* ''to press softly, firmly e.g. of binding thatching on to bamboo lathes; fig. to render submissive; *mĕmatoh orang jo lunak nan elok* 'to bend a person to one's will gentleness is the best course'''—Van der Toorn.

[4] *Bukau* 'a hill base, land-locked basin, wide gorge' has been corrupted in Rembau into *bakau* 'mangrove' (''Rembau,'' p. 104 XVI).

[5] 'Sloping'—Van der Toorn's ''Woordenloek.''

[6] 'Old of persons and trees,' *id.*

Jalan rayat titian batang
Waris yang ĕmpunya.
Jalan paya titian pĕrmatang,
Lĕmbaga yang ĕmpunya.

It conserves communal rights:

Ĕmbun sa-titek di-lautkan,
Tanah sa-buku di-gunongkan;—
Yang dalam adat dan aturan.

and enjoins the care of property.

Padi ta' bĕrpagar lalang,
Kĕrbau ta' bĕrkandang sĕladang.

It lays down conditions of entail,

Pĕsaka
Yang bĕrsĕsapan,[1] yang bĕrjĕrami,
Bĕrtunggul, bĕrpĕmarasan.

and for the transfer of entail.

Sah batal ka-pada sa-kadim;
Kata bĕrchari ka-pada waris-nya;
Tinggal waris mĕnongkat;
Tinggal sa-kadim mĕlintang;
Tinggal harta bĕrtuan ta' jadi;
Tinggal tua batal.[2]

Under the matriarchal system, males are elected to tribal offices.

Tĕrbit pĕsaka ka-pada saka;[3]
Si-laki-laki mĕnyandang pĕsaka:
Si-pĕrĕmpuan yang punya pĕsaka,
Orang sĕmanda yang mĕmbĕla.

An office never dies.

Patah tumboh; hilang bĕrganti.[4]

Rules of election.

Ganti hidup bĕrkĕredlaan,
Ganti mati bĕrkĕbulatan.[5]
Kĕbulatan anak buah mĕmbuat atau mĕmĕchat buapa;
Buapa bulat, waris-nya rapat, mĕmbuat atau mĕmĕchat tua;

---

[1] *Sĕsapan* ''abandoned land''—Adatrechtbundel VI, p. 406. A Minangkabau saying runs:—

Sa-saso, sa-jĕrami,
Sa-ladang, sa-sawah,
Sa-hutan tinggi, sa-hutan rĕndah,
Sa-pandan, sa-pĕrkuburan

—Willinck, p. 381. Jelebu Malays explain the above saying as referring especially to graveyards; perhaps a reminiscence of this Minangkabau saw, which is no longer known in Jelebu. ''Rembau'' (p. 110 XXX) renders it ''The waters of the pool and cataract are one''—a sentence unintelligible in the context and involving *bĕr. . . .i.* a formative equally unintelligible here. For *sa-pandan* a N. S. variant is *bĕrpĕndam.*

[2] ''Rembau'' (p. 112, XXXIX) states that this saying is quoted ''generally'' in reference to the ceremony of adoption. In Jelebu and Johol, it is quoted very frequently in reference to alienation of *tanah pĕsaka* to one outside the tribe; but

The Sakai path with its tree-trunk bridges
Belongs to the tribe that owns the soil.
The path over the knolls in the swamps
Belongs to the tribal headmen.

We take the dew-drop and mix it with our sea;
We take the clod of earth and mix it in the mountain:
That is the arrangement of the custom.

Rice-crops unfenced become waste grass;
Buffaloes unpent become wild cattle.

Idle fallow, land with stubble,
Land with tree-stumps left by the feller,
Land that has been levelled—
These can be inherited, (—for they bear evidence of occupation).

The woman's nearest of kin can approve or prevent;
The full members of the woman's tribe elect to find the money;
If there are full members of her tribe, they can subscribe to save the tail;
If there are next of kin, they can bar the sale;
If the property in question has an owner already, the sale cannot proceed.
The tribal headman can quash the sale.

Our heritage comes from our women;
Men wear the insignia of hereditary office;
The inheritance belongs to the woman,
The man cherishes it.

What is broken, grows: what is lost replaced.

If a chief retires, he can suggest his successor.
If a chief dies, election by the common voice is required.
A family by common consent can elect or dismiss its elder;
Elders by their common consent and with the support of enfranchised members of the tribe can elect or dismiss a tribal headman,

---

there, too, can refer to the preliminaries of adoption and of substitution in the case of murder.

[3] In *adat* sayings, *saka* = "female line of descent," *baka* "the male line."

[4] Cf. Newbold's "Malacca," II p. 107.

[5] Other sayings are current in Johol and Jelebu:—
Ganti hidup, bĕrkĕgĕlaran,
Ganti mati, bĕrkĕgiliran,
which means that a *pĕmangku* may be of the same *pĕrut* and in fact the nominee of the retiring chief—provided the tribe does not object; while on the death of a chief, the rotation among the *pĕrut* must be observed:
Pĕchat hidup, bĕrkĕredlaan,
Pĕchat mati, bĕrkĕrapatan,
which has the same import.

Kĕbulatan tua, boleh mĕmbuat atau mĕmĕchat undang;
Undang bulat, lĕmbaga rapat, waris sĕdia, mĕmbuat
atau mĕmĕchat raja.[1]

Penalties for abuse of office.

Di-anjak layu, di-chabut mati,[2]
Kata adat dĕngan pĕsaka.

Conditions for betrothal.

Adat tidak mĕlintang
Hukum tidak mĕngambek,[3]
Boleh sĕmanda-mĕnyĕmanda.
Bila bĕrsĕmanda di-mana-mana suku,
Sah kata adat,
Ayer di-sauk, ranting di-patah.

The married man serves his wife's tribe,

Orang sĕmanda bĕrtĕmpat sĕmanda.
Jika chĕrdek, tĕman bĕrunding;[4]
Jika bodoh, di-suroh di-arah.
Tinggi banir,[5] tĕmpat bĕrlindong,
Rimbun dahan, tĕmpat bĕrnaung.
Orang sĕmanda pĕrgi karna suroh,
Bĕrhĕnti karna tĕgah.

which uses him according to his qualifications.

Jikalau kita mĕnĕrima orang sĕmanda;
Jikalau kuat di-bubohkan di-pangkal kayu;
Jikalau bingong di-suroh arah,
Mĕnyĕput nan jauh, mĕngampongkan nan dĕkat;
Jikalau ia chĕrdek, hĕndakkan rundingan;
Jikalau maalim, hĕndakkan doa-nya;
Jikalau kaya, hĕndakkan ĕmas;
Jikalau patah, pĕnghalau ayam;
Jikalau buta, pĕnghĕmbus lĕsong;
Jikalau pĕkak, pĕmbakar bĕdil.

Masok ka-kandang kĕrbau mĕnguak;
Masok ka-kandang kambing mĕmbebek,
Bagai-mana adat tĕmpat sĕmanda di-pakai;
Bila bumi di-pijak, langit di-junjong,
Bagai-mana adat nĕgĕri itu di-pakai.
Orang sĕmanda dĕngan orang tĕmpat sĕmanda,
Bagai mĕntimun dĕngan durian;
Mĕnggolek pun luka, kĕna golek pun luka.

---

[1] This last line contains a special reference to local Jelebu history. Jelebu, like Rembau, has the saying *Raja tiada mĕmpunyaï nĕgĕri dan tiada boleh mĕnchukai khĕrajat, mĕlainkan bĕrkĕadilan sahaja sĕrta pĕrmakanan-nya.* ''Rembau,'' p. 110 translates *khĕrajat* ''war-levy,'' but why? In Arabic it means, ''land-tax,'' and that fits the context exactly. In N. S. the phrase *khĕrajat mati* is always used of ''funeral expenses.'' *Bĕrkĕadilan* = ''possessed of the powers of a justiciar.''

[2] ''Transplanted it (the custom) withers, uprooted it dies'' (Rembau, p. 100, VIII.) The saying is also used of the dismissal of a chief from office, and of removing an offender from the path of evil or eradicating him from the tribe.

The tribal headmen by common consent can elect or dismiss a chief.
The chiefs by common consent and with the support of the tribal headmen can elect or dismiss the king.

What is transplanted withers, what is uprooted dies:
Is a saying of our hereditary custom.

When custom does not obstruct,
Nor religion prevent,
One can marry and give in marriage.
When a man marries into any tribe,
It is clear, says custom,
He becomes a drawer of water and hewer of wood.

When a man marries and goes to his wife's family,
He will be a friend in council, if clever;
If foolish, he will be ordered about.
A tall man, he will be as a sheltering buttress;
Prosperous he will be as a well-laden branch that gives shade
The married man must go, when he is bid
And halt, when he is forbid.

When we receive a man as a bridegroom,
If he is strong, he shall be our champion;
If a fool, he will be ordered about
To invite guests distant and collect guests near;
Clever and we'll invite his counsel;
Learned and we'll ask his prayers;
Rich and we'll use his gold;
If lame, he shall scare chicken,
If blind, he shall pound the mortar,
If deaf, he shall fire our salutes.

If you enter a byre, low;
If you enter a goat's pen, bleat;
Follow the customs of your wife's family.
When you tread the soil of a country and live beneath its sky,
Follow the customs of that country.
A bridegroom among his bride's relations
Is like a cucumber among *durian* fruit;
If he rolls against them, he is hurt,
And he is hurt, if they roll against him.

---

[3] = *měnghambat.*

[4] "If he is clever, I will try to cajole him" (Rembau, p. 116 XLVII). "Rembau" accepted this translation from Mr. Hale, who had excuse for rendering *těman* "I," as he had been a Perak officer. *Těman* is a Perak and not a N. S. word for "I," and *běrunding* does not mean "cajole."

[5] *Tinggi banir* and *rimbun dahan* do not necessarily imply one and the same person ("Rembau," p. 117 XLVII): they contrast the strong man and the rich man.

His wife's tribe controls and protects him in business.

Kusut mĕnyĕlĕsaikan,
Chichir mĕmungut, hilang mĕnchari,
Utang mĕmbayar, piutang mĕnĕrimakan
Oleh tĕmpat sĕmanda.

Bridegrooms differ in type.

Pĕrtama orang sĕmanda sahaja,
Kĕdua orang sĕmanda bapa budak,
Kĕtiga orang sĕmanda langau ijau,
Kĕĕmpat orang sĕmanda kumbang jantan,
Kĕlima orang sĕmanda alas tĕmpat sĕmanda.

Custom has fixed rules for division of property on divorce.

Chari bahagi,[1]
Dapatan tinggal,
Pĕmbawa kĕmbali,
Kutu di-bĕlah,
Suarang[2] di-ageh,
Rugi laba pulang ka-tĕmpat sĕmanda,
Nyawa darah pulang ka-pada waris.

The education of children,

Bila mĕngadakan anak,
Kalau laki-laki, di-sĕrah mĕngaji;
Kalau pĕrĕmpuan, di-sĕrah mĕnjahit.
Masa itu tĕrhutang-lah orang sĕmanda,
Pĕtang mĕngandangkan,
Pagi mĕlĕpaskan;
Di-jaga ayam,
Jangan di-makan musang,
Kĕrbau jangan mĕrompak.

until marriage.

Bila baligh anak itu,
Yang pĕrĕmpuan masa-masa-nya di-nanti-nantikan,
Masa-masa-nya di-adang-adangkan untong-nya,
Yang laki-laki masa-masa-nya di-chari-charikan,
Masa-masa-nya di-adang-adangkan untong-nya;
Ia-itu
Gamit yang bĕrkĕchapi
Risek yang bĕrdasus[3]
(Sa-umpama barang kali ada yang bĕrhajat yang mĕmbĕli-nya.)

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[1] Some interpreters distinguish this line from the fifth as our translation does: others explain that *chari* refers to land and *suarang* to other property. I think there is little doubt that the first line is a N. S. paraphrase for the Minangkabau terms of the fifth line, and that the two lines are identical and refer to joint earnings of husband and wife. Line 5 always takes the place of line 1 in real Minangkabau *pĕpatah* and line 1 does not occur. [2] Cf. note 1, p. 30. "Rembau" reads *bĕrsaorangan*, obviously corrupt, because *bĕr*..............*an* is a plural formative and *sa*—a singular and their conjunction unthinkable: *pĕrsuarangan* is a Minangkabau form common in N. S. Jelebu pundits take *kutu* to mean 'lice' and the phrase *kutu di-bĕlah* to imply that even the parasites on the persons of those seeking a divorce must be split in half, presumably a last occasion

To unravel disputes,
To pick up the fallen and search for the lost,
To pay debts and receive dues
Is the business of a man's wife's family.

Sons-in-law are of five kinds,
First the mere son-in-law;
Secondly the father of children for the tribe;
Thirdly the green fly that leaves his sting (and deserts his pregnant mate),
Fourthly the bee that sips from every flower,
Fifthly the bulwark of his wife's relations.

Earnings by husband or wife during marriage are given to him or her who has earned them;
What a man has got by his wife remains with her tribe;
What the husband brought goes back to him;
Property in partnership is split up;
The common property acquired by a man and wife's joint labour is equally divided;
Any loss or profit on the wife's estate is a matter for her tribe
The man's person is restored to his own tribe.

When we get children,
Boys must be set to learn their letters
Girls must be set to sew.
At that time it is the duty of the mother's relations
To gather the children to the fold in the evening
And to let them loose in the morning.
They must guard the chicks
Lest the civet devour them;
They must keep the young buffaloes from prowling.
And when the children come to years of discretion,
The girls will be sometimes awaited
And sometimes will be hawked about as brides
And the boys sometimes will be sought in marriage,
And sometimes will be hawked about as suitors.
And then
There will be fingers twitching
And lips whispering over the bargain
As when perchance folk have set their hearts on a purchase.

---

of familiarity! Willinck (p. 629) found Sumatran pundits taking the same view. "Rembau," p. 114 translates "while at one, share alike," an impossible rendering because *bĕlah* = 'divide,' not 'share.' Our translation is that of Johol and of Dutch scholars.

[3] Humphreys reads *bĕrlusus* (Journal 72, p. 30) but *bĕrdasus* is the form used in Jelebu and Johol and seems to be correct: *vide* Van der Toorn.

Bila dapat di-orang sĕmanda
Di-bawa ka-tĕmpat sĕmanda,
Bila dapat di-tĕmpat sĕmanda
Di-bawa ka-orang sĕmanda.

The marriage contract.

Bila sah sa-kata,
Tanda di-tĕrima,
Di-kĕnbangkan dari sa-orang ka-sa-orang
Ia-itu sa-bĕntok chinchin bĕrtanya.
Kalau sah sa-kata
Kata di-kĕmbalikan;
Kalau ta' sah sa-kata,
Tanda di-kĕmbalikan
di-dalam tujoh hari: sa-lambat-lambat-nya dua kali tujoh hari.
Chinchin mĕnantikan adat

karna

Orang bĕrbini bĕrbĕlanja,
Orang bĕrchĕrai bĕrkĕsudahan,
Orang bĕranak bĕrupah bidan,
Orang nikah dĕngan mahar-nya
Adat di-isi, janji di-laboh.
Sah kata adat mansiang.
Chachat chĕdĕra di-kĕmbalikan.
Sawan gila luar janji.
Elah si laki-laki lunchur,
Elah si-pĕrĕmpuan ganda.

When a lad's folk have found a girl,
They bring the matter to her relations.
When a girl's folk have found a lad,
They bring the matter to his relations.
When the pact is made,
A token is accepted,
And the news spread from neighbour to neighbour,
The news of the ring token.
If the pact is made,
Word thereof is sent back;
If the pact falls through,
The token is sent back
within seven days, or at the latest days twice seven.
And the ring sent as token
Remains till the bride-fee is paid.

For

The married state involves maintenance
And divorce settlement,
And birth a midwife's fee,
And marriage the bride-fee
Bride-fee paid, the pact is made fast;
But the law of nature ordains
That the fee may be returned
If there is flaw or blemish in the bride.
Epilepsy and lunacy annul the pact.
If the groom break his troth, the bride-fee is forfeit.
If the bride break her troth, it must be repaid two-fold.

Some Lexicographical Notes,

From the Dutch.

By R. O. Winstedt.

Of late years the Dutch Government has published many of its journals on Medicine and Agriculture in English as well as Dutch, and recently a *Year-Book of the Netherlands East Indies, 1916.* It is a pity that cost will probably preclude private societies from following this example, or British students would have a better chance to become acquainted with the abundant fruits of Dutch scholarship. In this paper I propose to invite attention to notes on the derivation and meaning of some Malay words printed in the *Bijdragen tot de Taal-, Land- en Volkenkunde van Nederlandsch-Indië, uitgegeven door het Koninklijk Instituut.*

Deel LIV, 1902 p. 311-312 contains a note by H. Kern, pointing out that the Malay word *bĕdil* is derived from the Tamil *vedil* or *vediyal* 'explosion of gun-powder:'—cf. *vediluppu* 'saltpetre' with the Batak *sira bodil* 'saltpetre.' For the change from *v* to *b* one may compare *Bĕlanda* from *Wolanda.* For the change in the accent from the penultimate to the final syllable, one may compare the Malay *pĕti* with the Tamil *petli,* the Malay *kĕdai* with the Tamil *kadai.* Where the paroxytone is retained, as in Tamil, then the indeterminate vowel is not found:—Tamil *s'atai* 'meat,' Malay *sátai,* Javanese *sate.*

In *Deel LV* pp. 50-52, Dr. Ph. S. van Ronkel has a paper on the derivation of *satai* and other Malay words from the Tamil—*bagai, ragam, sĕgala, badai, jodo, kodi, patam, mĕtĕrai.*

On p. 483 *Deel LVIII., derde en vierde Aflevering* (1905) the same writer has a short paper on "*Kuda Sĕmbĕrani.*"

Klinkert interpreted the word *sĕmbĕrani* as *sĕm + bĕrani* 'fiery, spirited.' Pijnappel derived it from the Sanskrit *suwarna* 'bright coloured,' for which Riau-Johore Malay has *sĕmburna* and Kedah *sĕmbawarna* Prof. Kern thought it might be from *sauparni* or *sauparneya,* "offspring of Suparna" one of the names of Garuda. Lexicographers have translated the word 'a mythical breed of horse,' 'winged steed,' 'a Pegasus.'

Two forms of it are found: *sĕmbĕrani* and *sĕmburani.* In the *Hikayat Raja-Raja Pasai* (J. R. A. S., S. B. No. 66, p. 32) occur the phrases *kuda sĕmbĕrani, anak kuda Parasi* and *kuda galak kĕlabu sĕmbĕrani anak kuda Parasi*:—The Romanizer has wrongly put *kĕlak* for *galak* and *Pĕrasi* for *Parasi,* it should be noted. The horse is one that *tiada pĕnah di-kandaraï manusia* "has never been ridden by man." The passage makes it clear that reference is not to a mythical steed but to an unbroken horse, of mixed breed: '*anak Parasi*' = 'having a Persian sire' only, while pure Persian would be simply *kuda Parasi. Pâraci* is the Tamil form of 'Persian', while the usual Malay form is disyllabic *Parsi. Kĕlabu* 'ash-grey' describes generally the colour of mouse or wolf, but van Ronkel thinks it may perhaps be used of 'bay' horses. A half-breed Persian horse would be quite likely in the Malay archipelago: certainly horses were imported from India; even the word *kuda* is the Sanskrit *ghota* in its Deccan form *koda.*

Now in Tamil 'bay' red is *cĕm*:—*cĕmbadai* 'red hair,' *cĕmbalam* 'yellowish fruits,' *cĕmmari* 'red short-haired sheep.' Again there are two Tamil words *puram* and *purani* both meaning 'the outside, bark, hide.' *Cĕm* + *purani* would properly become *cĕmburani* = *sĕmburani* = *sĕmbĕrani*: and the word would mean 'with reddish hide, bay.' Perhaps the word occurs for the first time in this passage form the "Chronicles of Pasai;" if so, the unusual Tamil form *Parasi* would lead us to expect almost any other unusual word in the sentence to have a Tamil form. Professor van Ronkel's interpretation seems very plausible.

In *Deel LXVI* the late Professor Ch. A. van Ophuijsen has published lexicographical notes elicited by the appearance of Klinkert's *Nieuw Maleisch-Nederlandsch Zakwoordenboek* in 1910. It is too long an article for me to notice any but a few points here. He remarks that in the *Sĕjarah Mĕlayu* we have a meaning of *nagara* 'hill-top' (*naga* 'hill,' *agra* 'top') which has escaped lexicographers :—*di-ikut baginda ka-atas bukit, bĕrtĕmu di-nagara bukit itu.* He surmises that *padusi* is derived from the Sk. *vidushi* 'wise,' and *pĕridi* from the Sk. *vriddhi* 'growth, increase.' He points out that in Minangkabau *kain ainu'l-banat* becomes *kain Indabanat,* and *Inda* = *Indĕra* and suggests that it is a fabric labelled with the name of some place like *Indĕrawanat.* The whole paper is valuable to the lexicographer and corrects many errors of Klinkert, even if some of the derivations suggested for words may be doubtful.

On p. 422 *Deel 68, derde Aflevering* (1913) G. P. Rouffaer discusses the derivation of the words *kachi, chĕngkurai* and *chindai.* Klinkert interpreted *kain kachi* = 'fine shirting,' and *chaul* he derived from the Persian *sal* and *muri* from "moiré" and *Bĕlati* from *bĕrhati!* Prof. Kern (*Bijd. Kon. Inst. 7,* I p. 442) pointed out in 1903 that Malay *chaul* and old Javanese *chawĕli* were derived really from the Indian trading port "Chaul." Wilkinson derived *Bĕlati* from the Skr. *vilayati,* apparently printing "Skr." by a slip for "Arabic," the Arabic being *wilayati, walayti* "of the motherland" and thence "European." Malay *muri* = *muris* = *molis* = Jav. *mori* "white calico."

Rouffaer points out that the Arabic long *i* is suffixed often to names of places to form adjectives.

Malay *Bĕrochi* = Bharochi = (silk) from Bharoch (Broach).
„ *Sĕlampuri* = Sĕrampuri = (blue cotton) from Sĕrampore.
„ *Surati* = (Cotton) from Surat.
„ *Kachi* = (White cotton) from Cutch.

Rouffaer expresses wonder that Klinkert had not consulted Wilkinson's Dictionary for the derivations of *Bĕlati* and *Kachi*.

So many Malay words for fabrics are geographical. *Kain Kĕmbayat* 'cloth from Cambay;' *kain Pĕlekat* 'cloth from Palikat*;' *kain Chĕmpa* 'cloth from Champa.' Rouffaer would derive *Chĕngkurai* from an Arab pronunciation of Singgora:—

Sĕnggora-î = *Chĕngkuraï* = *Chĕngkurai*

Von de Wall interpreted *kain chindai* = 'a patterned silk fabric from Surat." The *Livro* of Duarte Barbosa, published in 1516, quotes the word as *chande* and translates it "large silk mantillas worn by the women of Gujerat." Rouffaer claims that *Chindai* means "from Sind," through the Javenese form *Chinde*: *Chindai* he considers a bastard corruption of the older Javanese form, a corruption for which he finds parallels in certain place-names—Mal. *Kutai* = Jav. *Kute* = Sk. *Koti;* Mal. *Brunai* = Old-Jav. *Burune* (*ng*). But Prof. Kern did not accept this derivation of *chindai* as proved beyond question.

---

* *Kain Pĕlekat, kain Chaul,*
Sama-sama kila ampaikan
Adek bĕrniat, abang bĕrkaul
Sama-sama kita sampaikan
Pantun Mĕlayu 188, p. 51.

The Tomb of Mansur Shah, Sultan of Malacca, 1459—? 1475 A. D.

By R. O. Winstedt.

(With two plates)

When I was last in Europe, Mr. Blagden gave me a transcript of the inscription on a tomb purporting to be that of Sultan Mansur Shah, one of the rulers of Malacca before the advent of the Portuguese. Mr. Hervey had got two the inscriptions transcribed and had told Mr. Blagden that the tomb still existed. Mr. Blagden asked me if I could trace it. On a visit to Malacca, I found the two stones of the tomb placed against the wall of the Residency: Mr. Wolferstan kindly arranged for them to be photographed and undertook to take steps for their preservation. The photographs have been reproduced for its Journal.

An account of Sultan Mansur Shah's reign will be found on pp. 24-26 of Wilkinson's "History, Part I" in the "Papers on Malay Subjects" (F. M. S. Govt. Press, Kuala Lumpur).

According to Hervey's version, the inscription of the face at the bottom (or left) of Plate I should be deciphered as follows:—

"*Hadza raudzat al-mukaddasat wa'l-daulat al-tamih, al-matharat al-Sultan al-munawar al-adil al-malik al-badzil al-Sultan al-marhum Mansur Shah, kad antakala min dar al-mahal ila dar al-wirad yaum al-arbaa sanat dua Rajab wa thamanin wa thaman mi'ah.*"

The translation is.

"This is the tomb of the illustrious high and righteous glorious and just Sultan, the beneficent prince, the ruler loved of God, Mansur Shah. He departed this mortal abode for the abode of bliss on Wednesday, the second day of the month of Rejab in the year of the Hegira 880."

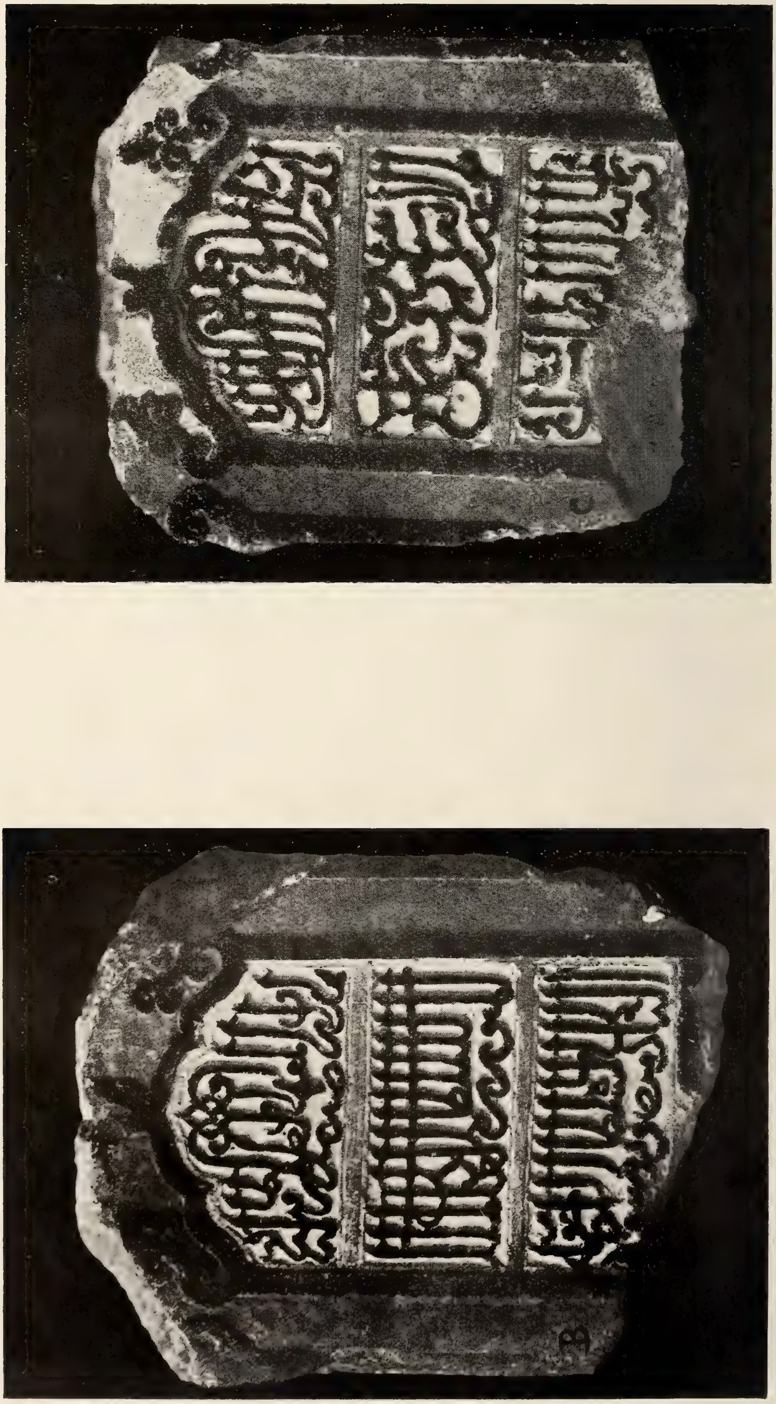
The inscription on the two edges of the tomb is deciphered:— which means

"*Al-asma' al-dufana' al-Sultan al-Ali.*"

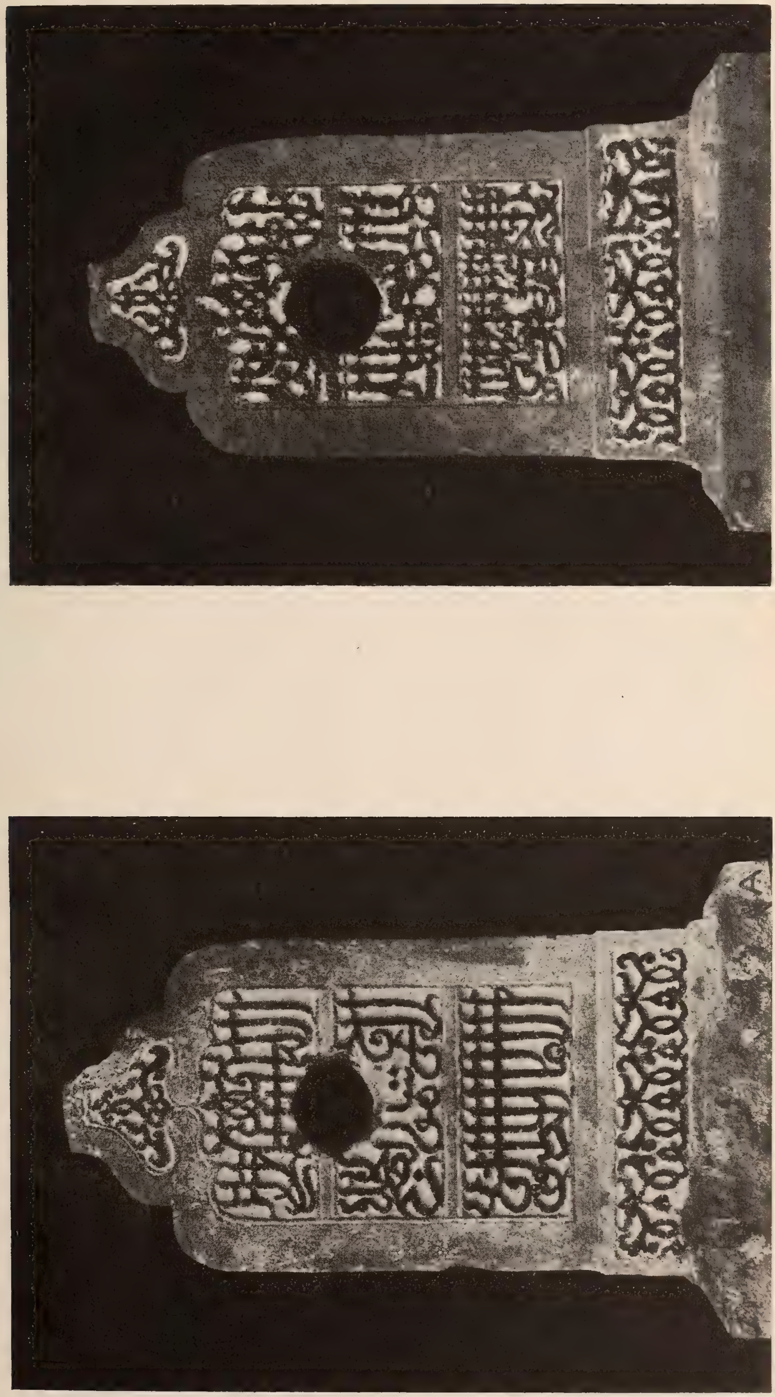
"The name of the deceased, the most exalted Sultan."

The 2nd of Rĕjab 880 A.H. = Wednesday, Nov. 1, 1475 A.D. But unfortunately the bottom line of the inscription would seem to have been chipped and damaged since Hervey's day. If the date is correct, the tomb will be the oldest known relic in Malacca, perhaps with the exception of the Hindu *makara* at the foot of the Residency hill.

It is fair to add that a local Arab pundit to whom photos of the tomb were submitted could not make the above version out of the inscription and failed to give an intelligible interpretation. It would require a scholar acquainted with the carved Arabic script of that period to give a final interpretation: possibly Hervey got his version from such a scholar but there is no record. The hole in the other stone finds a parallel in the hole of the Pengkalan Kempas tomb.



TOMBSTONE OF SULTAN MANSUR.



TOMBSTONE OF SULTAN MANSUR.

Gordonia concentricicatrix, Burkill,

(Kelat samak, Samak pulut, Kelat merah—Malay)

By G. E. S. Cubitt.

(With one plate)

This new species, of which a botanical description was published in pages 152 and 153 of No. 76 of the Society's Journal, is illustrated in the frontispiece. It is a large evergreen tree attaining a height of over 100 feet with a maximum girth so far recorded of 8½ feet at 4½ feet from the ground. The stem is cylindrical and slightly thickened at the base, but not buttressed. The bark has been variously described as light brown, reddish brown, and fawn-coloured, and peels off in flakes a foot or more in length and an inch to three inches wide. the peeling usually being from below upwards. The flakes in falling leave a light terra-cotta coloured smooth new bark, marked with lozenge-shaped concentric scars resembling a contour map. The scars are not always as conspicuous as those shown in the plate, but are always perfectly evident, and can at any time be exposed by removing the loose bark. The scars are also clearly visible on the inside of the old bark, but tend to disappear with age on the outside. The bark, when cut or wounded, exudes a dark blood red or crimon sticky juice, which turns black on drying. Below the bark the blaze is white. The crown is fairly open.

It is not unlikely that the tree flowers and fruits twice yearly, the fruit taking about 6 months to ripen. In Selangor on the 21st May, 1917, the tree was in full flower; on the 31st May, 1916, the stamens had fallen, and the fruit was just beginning to form; in June, 1916, ripe capsules were collected; in July, 1917, old fallen fruit was found on the ground; in October, 1917, the fruit of the flowering of the previous May had not yet ripened. In Pahang the tree is said to flower in December and January; in August, 1917, neither flower nor fruit was obtainable.

Gordonia concentricicatrix is somewhat uncommon but is widely distributed, being recorded from Malacca and the Dindings, as well as from Selangor and Pahang. So far as is known at present it grows only at low elevations, probably not above 1000′. In the Rantau Panjang Reserve in Selangor it occurs over a small area in large numbers, 25 trees from 15″ to 8½′ (average 44″) in girth at breast height having been counted on two acres. This is however exceptional and, elsewhere it occurs sporadically. Its chief associates in the Rantau Panjang Reserve, where the soil is a loam, are Ochanostachys amentacea and various species of Shorea, with Eugeissonia tristis in the under-growth. In the Bangi Reserve in Selangor it is found with Kelat Merah (Eugenia sp.), and its resemblance to this tree no doubt accounts for its being known to some Malays by the same name. The Eugenia bark is similar in colour to that of the Gordonia, but does not peel off in the same long flakes. The Eugenia also has scars on the new bark, but they are not very conspicuous and are wavy rather than concentric. Finally the blaze of the Eugenia is quite dry.

Gordonia concentricicatrix yields a tough close-grained pinkish to red-brown timber somewhat lighter than water and said by the Malays to be suitable for house-building. The bark is used in Pahang for dyeing fishing nets and clothing for rough use, cloth treated three times with the dye becoming, so it is said, fairly waterproof.

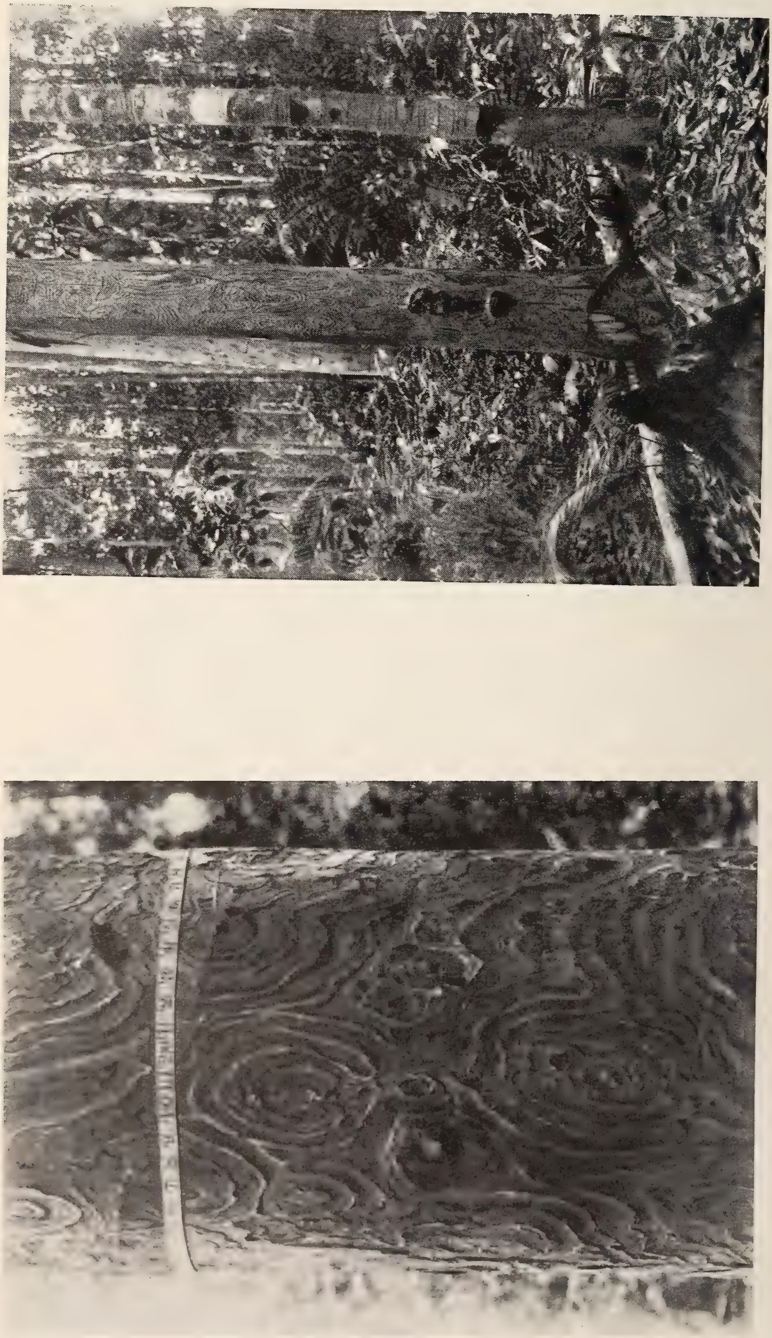
The following corrections should be made in the botanical description already to referred to:—

(i) Under figures 10 and 11 "Abdul Rawi" should read "Abdul Rani."

(ii) Under figure 11 "898" should read "878."

(iii) In the particulars of occurrence the sentence "ex Selangor..............et cum fructibus" should read "ex Selangor ad Rantau Panjang collegerunt sub numero C. F. 878 J. G. Watson et Abdul Rani mense Maio cum floribus et mense Junio cum fructibus."

* * *



GORDONIA CONCENTRICICATRIX, BURKILL.

Photos by J. G. WATSON.

English Tombs and Monuments in Bencoolen.

By C. J. Brooks.

(Wits three plates).

Bencoolen, as an early English settlement in the East, may lay claim to more than passing interest from the historian of English pioneer colonisation, and to the naturalist, as a centre where early researches were made, in a country of which the fauna and flora are but still incompletely known, and whose vast forests are yet unexplored.

It was in connection with the latter that the writer's attention was drawn to the old English tombs in Bencoolen while seeking the burial place of Joseph Arnold, the discoverer of the Rafflesia, and that of William Jack, the author of Malayan Miscellanies, both were presumably buried there[1]. Neither can be located, possibly they are among the majority whose tombs bear no inscription, together with Sir T. S. Raffles' son and Capt. Auber, both mentioned in Jack's letters to Wallich as dying during this period in Bencoolen[2], while that of Jn. Lancaster, Surgeon[3], is in evidence. They may however rest in some forgotten spot, perhaps adjoining the old Residency, where ever it was, for interments were not confined to the burial ground, although in existence at the time, and the earliest inscribed grave bears the date 1775, but are somewhat scattered at least those of the governing class. For instance Capt. Hamilton's tomb is even now on the outskirts of the town while others are in Fort Marlboro, and the site of Governor Watts' is unknown.

In this record it has been assumed that old tombs bearing no inscription belong to the period under consideration, at the same time it must be admitted there is little justification for doing so; in either case it is difficult to understand why so many tombs bear no inscription, 46 in a total of 73. In nearly every instance a recess exists for the insertion of a tablet, possibly some have been stolen, but in many cases the sides are so smooth that it is unlikely one was ever inserted.

Magnificent casuarinas and crotons give a picturesque effect, and lend a solemn shade during the hot hours of the day. The tombs are well tended as far as the removal of vegetation and whitewashing is concerned, many show large cracks in the masonry probably due to earthquake. It is still the burial place of Benkoelen, but in the accompanying plan only the locations of the English tombs are indicated, with a few exceptions which are not mentioned in the text.

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[1] **Jack's letters to Wallich, vide introduction This Journal No. 73 page 147 and 239**

[2] **,, ,, ,, ... ,, 234**

[3] **,, ,, ,, ... ,, 237**

The author's thanks are due to Mr. Westenek, the Resident of Benkoelen, Mr. van den Horst, and Mr. P. Jansen, T. Pzn., for assistance in compiling these notes.

TOMBS IN FORT MARLBOROUGH.

To the right on entering the barbican and below the barbette, are three altar tombs, side by side, each surmounted by a massive slate slab. The inscriptions are now illegible with the exception of the names and a few words in No. 1 and 2, and entirely in the case of No. 3.

No. 1 (Near the barbette)

Charles Murray Esq.
Assist. Residt. Ft. Marlboro., 1807.

2 Thomas Parr Esq.

The inscriptions are long and both terminate with the name of Lord Minto. In one case it seems that it was erected to his order, this would then follow for the other.

THE MONUMENT TO RESIDENT PARR.

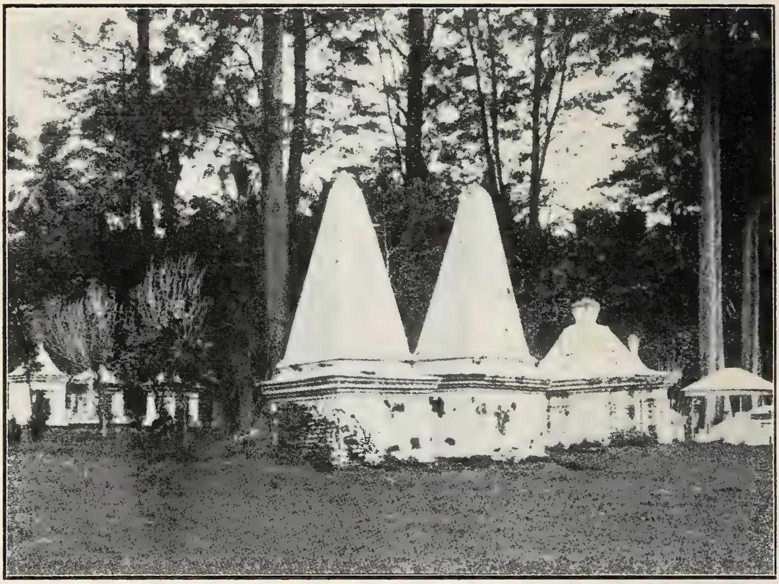
This handsome monument, a well proportioned domed pavilion, stands by itself in a small grass square in the busiest part of the town, at the top of the main Pasar adjoining the recreation ground.

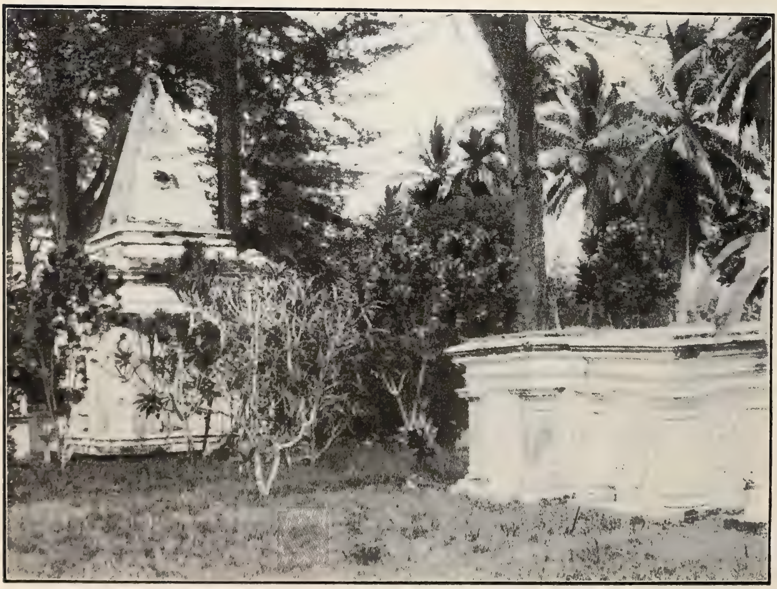
There is no inscription indicating the purpose for which it was erected, and at the present time the inhabitants both European and Native are almost entirely ignorant of its origin.

Resident Parr was murdered by the natives in 1805.

The condition of affairs preceding the tragedy, and later the revenge taken by the Government on the natives is described in Nahuy's Letters, and Lady Raffles's Memoir, (vide, Onze Indische Financien, by E. de Waal, p. 8 & 9.) of which the following is a brief summary:—

> The business of the East India Company was essentially in pepper, and to insure the largest profits against the lowest prices only elementary agreements were made with the head natives.
>
> The Governor and other functionaries were allowed to trade on their own account, especially in the importation of opium and piece goods to Java.
>
> The total trade of the port at this time was worth about £100,000 per annum, while the Company's trade in pepper was declining, they—the Company—decided to economise.





OLD BRITISH TOMBS IN BENCOOLEN.

In 1801 under the Governor-General Lord Wellesley a commissioner was sent from the High Court of Bengal to Bencoolen with authority to suspend the Governor and his two councillors and reduce the number of functionaries, prohibit private trading, and reduce the Settlement to a dependency of Bengal.

It appears that the commission was executed in a tactless manner. The garrison of Fort Marlboro was assembled in arms and the commission read in public.

A considerable outcry resulted from this insult, some of the dismissed received compensation, while others were dismissed without pay and being bound to the place became impoverished. These conditions caused great discontent which was increased among the natives by the action of Resident Parr, who was sent from Bengal to succeed the late Governor.

He proceeded to reform the native administration of justice without consulting the native chiefs, assuming a despotic power over them. To the cultivation of pepper he added coffee and made both compulsory.

Moreover being used in his former position in Bengal to absolute obedience he personally insulted many of the most important natives.

Before long a conspiracy against his life was deliberated, this was known but Parr although warned would pay no attention.

On a determined night his house at Mt. Felix—some three miles south of the Fort—was attacked by a band of natives who overpowered the guard, then entered the room where Parr lay ill and decapitated him, in an attempt to defend him his wife and secretary Murray were wounded, but no attempt was made on their lives nor on the lives of other inhabitants of Bencoolen.

The attack was a personal matter.

The action of the Government relative to this is described in Lady Raffles's Memoir:—

> The measures that followed were of a doubtful cast.
>
> As soon as it was discovered that the designs of the people were confined to the assasination, and not directed against the settlement generally, search was made for the perpetrators of the act. Rewards were offered for the apprehension, alive or dead, of the assassins.
>
> It was thought unsafe to touch the chiefs. Several of the people were blown from the mouths of guns. As the danger diminished, the spirit of indignation and revenge seemed to have increased. An order was given to burn and destroy every village within a certain distance, and the work of de-

vastation was carried on as if it where intended to place the future security of the settlement in surrounding it with a desert. The fruit-trees, venerable by their age, that surround a Malay village, are the protecting deities of the place, and are regarded with reverence and respect; Their destruction is looked upon as little less than sacrilege; Yet the axe was laid to their roots, and what ever could shelter or protection was levelled with the ground, and the whole population of the suspected villages turned loose upon the country.

To retain this in the memory of the people a handsome monument was erected by the natives to the order of the Government, in honor of Parr.

It serves now as an ornament to the town, and a very suitable shelter to President Watts tombstone, the original site of this stone is now unknown. It leans against the inner wall, a massive granite slab, artistically inscribed as follows:—

Richard Watts Esq.

Sometime of Council for the Rt. Honble Compas Affairs in Fort St. George.

And in the year 1699 came over Deputy Governor of this Place.

And in about three years after made by Commission from the Company the first President of this Coast.

In which station he departed this life December 17, 1705. And in the 44 year of his age.

THE OBELISK TO CAPT. HAMILTON.

This stands in the junction of three roads, some little distance south of the town, and at the end of the Pasar Baroe Road.

A slate tablet bears the following inscription:—

Underneath this obelisk are intered the Remains of Capt. Robert Hamilton.

Who died on the 15th Dec., 1793. At the age of 38 years.

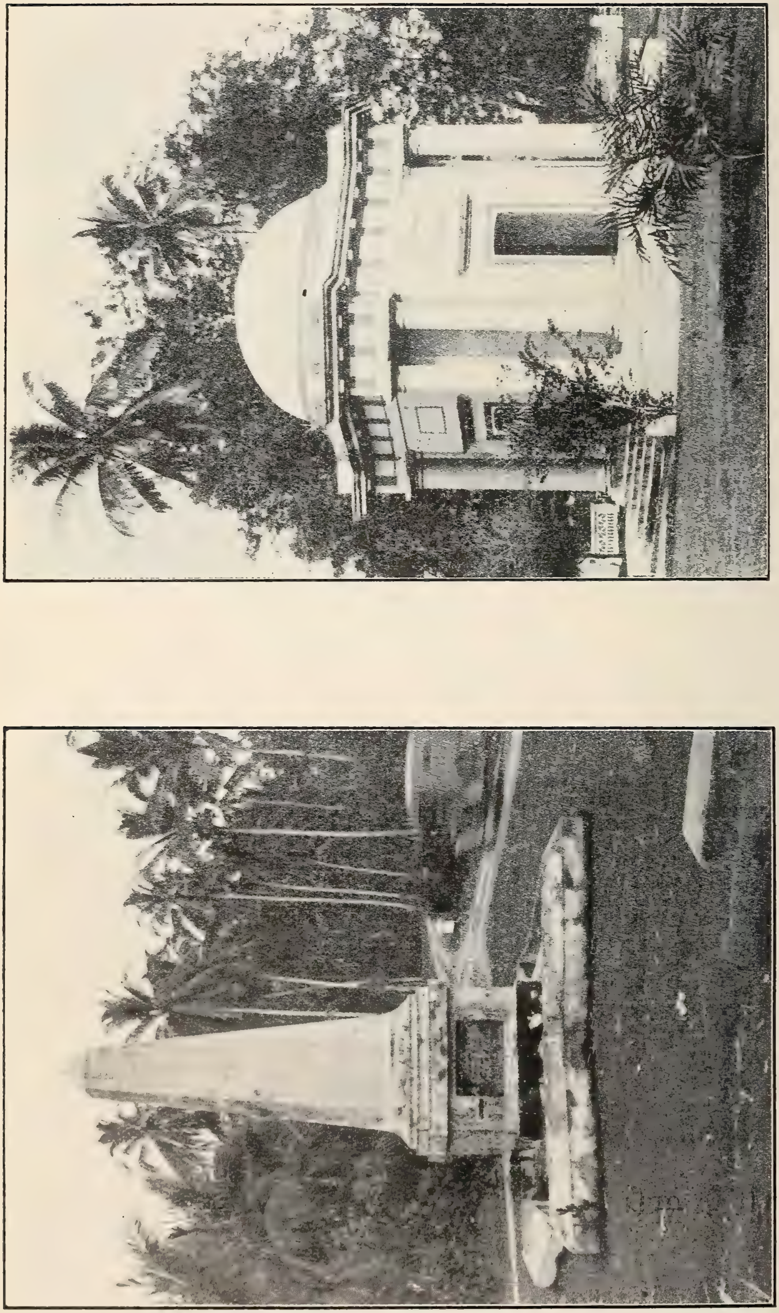
In command of the troops and second member of the Government.

THE CEMETERY, BENCOOLEN.

The numbers are those recorded in the Government register and plan, only those of English or early origin are mentioned in this record; All have monuments.

Division 1.

No.
12 Majr. Chas. Porteous
2nd Br. 20th Regt. B. N. I.
8 April 1816, Age 39
(A fine monument)



OLD BRITISH TOMBS IN BENCOOLEN.

17 No inscription.
19 ”
20 ”
21 ”
22 ”

23 Robt. Bogle Esq.
26th Sept. 1848

24 J. V. L. E. Bogle
9th Dec. 1814

25 Harriet. A. Hay
27th Dec. 1836, Age 26 Years
Eldest daughter of Bogle Esq.

Called not away when time had loosed each hold
On the fond heart, and each desire grown cold,
But when to all that knits us to our kind
She felt fast bound as love alone can bind.

27 No inscription

28 Ch. R. Ramus
14 March 1808, Age 1 year 11 months

34 Alex Monteath
Surgeon in the Hon. Comp. Civil Service
9 July 1798
(A large square tomb)

36 No inscription.
45 ”
46 ”
47 ”

50 Stokeham Douston Esq.
Who departed this life at Marlboro'
2 April 1775, Age 41
(A granite head stone in excellent condition)

51 M. B. Sprentels

55 Henry. J. Watson
Lieut. of the Fort Marlboro' local Corpus and formerly Lieut. of H. M. 87 Regt.
1st Feb. 1824, Age 35

56 Wm. Holloway
Who having served in the Civil Service of the Honbl. United English East India Company on the Island of Sumatra with Honor, Zeal, and Integrity after 22 years of service departed this life at the age of forty.

The moral qualities which graced his mind,
Proved him an ornament to human kind,
Society his manners so adorned
He lived respected, died sincerely mourned.
Oh pass not by, stop youthful pilgrim here,
Read this and on his ashes drop a tear.

(A fine monument)

57 Mr. Thos. Whittenberry
28th Aug. 1802, Age 18 years

58 Ed. Atkins Esq.
28th March 1812, Age 46

Division 2.

No.
1 A large square tomb with side tablets,

Ann. H. Johnstone
Christened 17th April, 1790 Died June.
Wm. Cox
1802-1804
Ph. Cox
May 1804 July 1804

3 No inscription.

4 T. W. Gibson
1862, Age 56

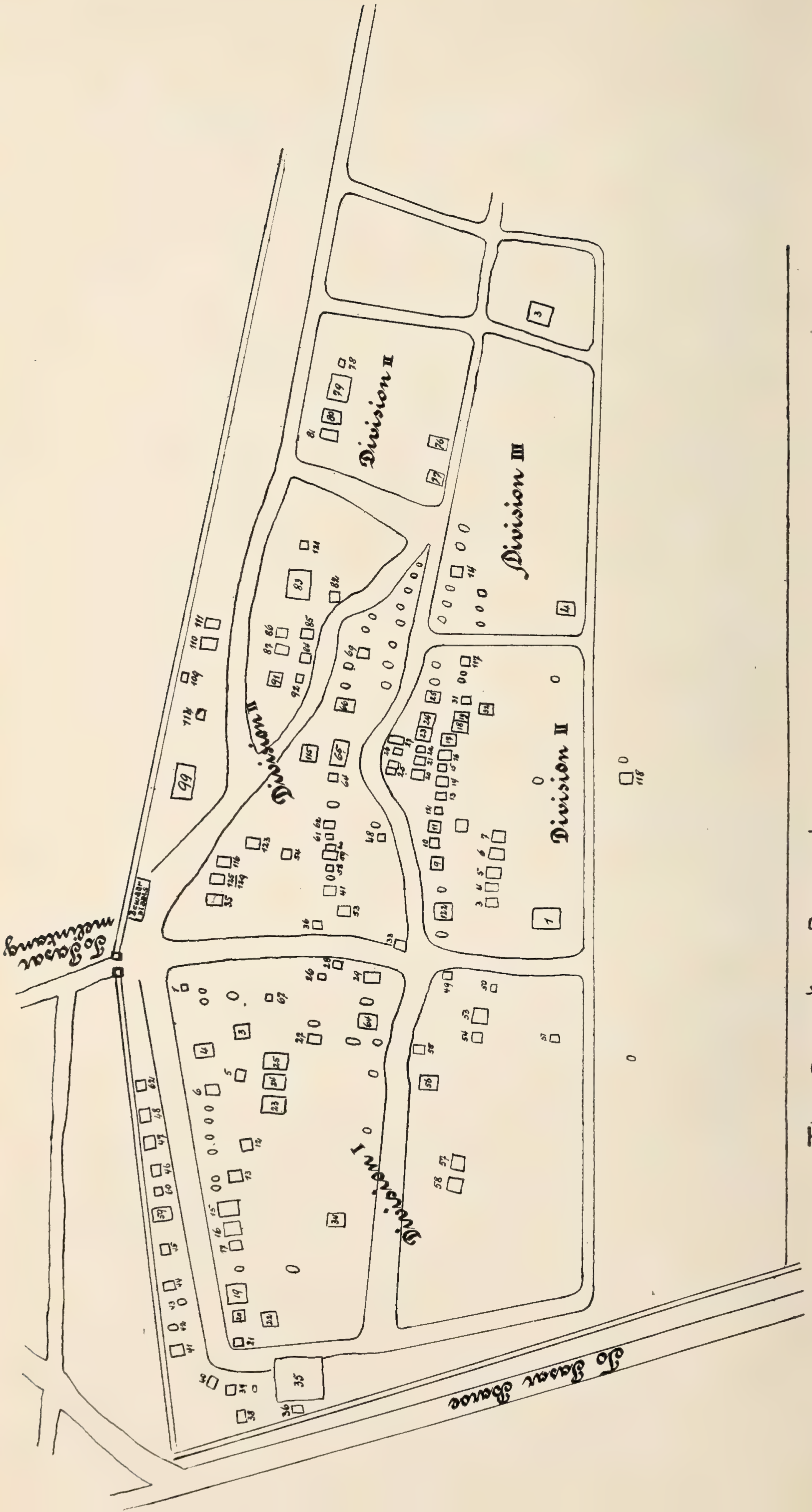
5 No inscription.
6 "
7 "
12 to 27 "
31 "
38 Ed. Crisp
Writer in the service of the E. I. Company.
24 Dec. 1796

53 Capt. Thos. C. Tapson
15 July 1816, Age 52

This humble monument was erected to his memory by his much afflicted friend Nonah Jessmina.

54 Miss Frances Maclane
18 Oct. 1858, Age 58

59 No inscription. Old tombs of various types.
60 "
61 "


Division I
Division II
Division II
Division II
Division III
To Pasar Melintang
Bewaar Plaats
To Pasar Baroe

The Cemetery Bencoolen:
Showing early English tombs:

62 No inscription. Old tombs of various types.
64 „
65 „
69 „
76 „
77 „
78 „
79 „ One of the finest monuments in the cemetery.

80 Capt. Robt. Hall
Of the Bengal Service
1820, Age 30

82 No inscription.

83 A large monument with side tablets
Jn. Lancaster
Assist. Surgeon of the Bengal Establishment
16th Sept. 1821, Age 33
Jane Lewis
Feb. 19 1815, Age 22
Wm. Baillie
Aug. 1810, Age 10 days
Mrs. M. Baillie
3rd May 1815, Age 25
Erected by her brothers H. R. and W. T. Lewis

86 No inscription.

91 Mary Anne, Wife of W. R. Jennings Esq.
22nd April 1818

99 No inscription. (A very large monument)

109 Jane, Wife of P. Devine
Sub-conductor of ordinance at Fort Marlboro'
9th March 1825, Age 33

She was possessed of the virtues which adorn the sex. And whose loss will ever be lamented by an affectionate husband.

125/9 No inscription.

Division 3.

No.
3 Mary Percival, Wife of Capt. R. K. Smith
Of the Ship 'Cynthia' of New York
11th April 1848.

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Bogle, Robt.	"	1	23
Cox, Wm.	"	2	1
Cox, Ph.	"	2	1
Crisp, Ed.	"	2	38
Devine, Jane	"	2	109
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Maclane, Miss Frances	"	2	54
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Parr, Thomas	"		
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Watts, Richard	Parr Monument		
Whittenberry, Thos.	Cemetery	1	57

On a Serow from Annam.

By Dr. R. Hanitsch,

Director, Raffles Museum, Singapore.

(With two plates.)

Two French gentlemen, Monsieur Louis Chochod and Monsieur Gabriel Saint-Poulof, of Quinhon, Annam, presented last year (1917) to the Raffles Museum the skin and skeleton of a Goat-Antelope or Serow, together with the photographs of the living animal, careful measurements and an account of its capture and of its behaviour in captivity.

The animal had been picked up in the sea by native fishermen on the morning of February 5th, 1917, off the peninsula of Phu'ong Mai (lat. about 13° 30′ N) in Annam, having apparently fallen from the high cliffs there. Monsieur Toulouse, Commissioner of Police, was the first to hear of it and informed M. Chochod and M. Saint-Poulof of this strange occurrence. They hastened to the spot and found the animal alive, tied to a tree and surrounded by gaping Annamites. The animal was uninjured, but seemed much frightened and pulled hard on the rope. It allowed itself to be touched and to be caressed, though all the same its eyes were rolling for terror. Once it pulled so hard that its feet slipped, causing it to fall heavily to the ground.

M. Saint-Poulof bought the animal from its captors, placed it on a cart and took it to his house where he photographed it. It continued to make desperate efforts to get free from the rope. It drank readily, but refused to feed although it was offered leaves and grass from the hills specially gathered for its benefit, and died three days after.

The natives knew nothing definite about the haunts and the distribution of this animal. They said it lived in the mountains and moved about at night time only; they affirmed that it was rare and that only woodcutters and charcoal burners occasionally met with it. They regarded its flesh as edible, though it brought ill luck to those who ate it. The horns were said to have wonderful medicinal properties, and the Chinese apothecaries pay high prices for them for treating nervous diseases.

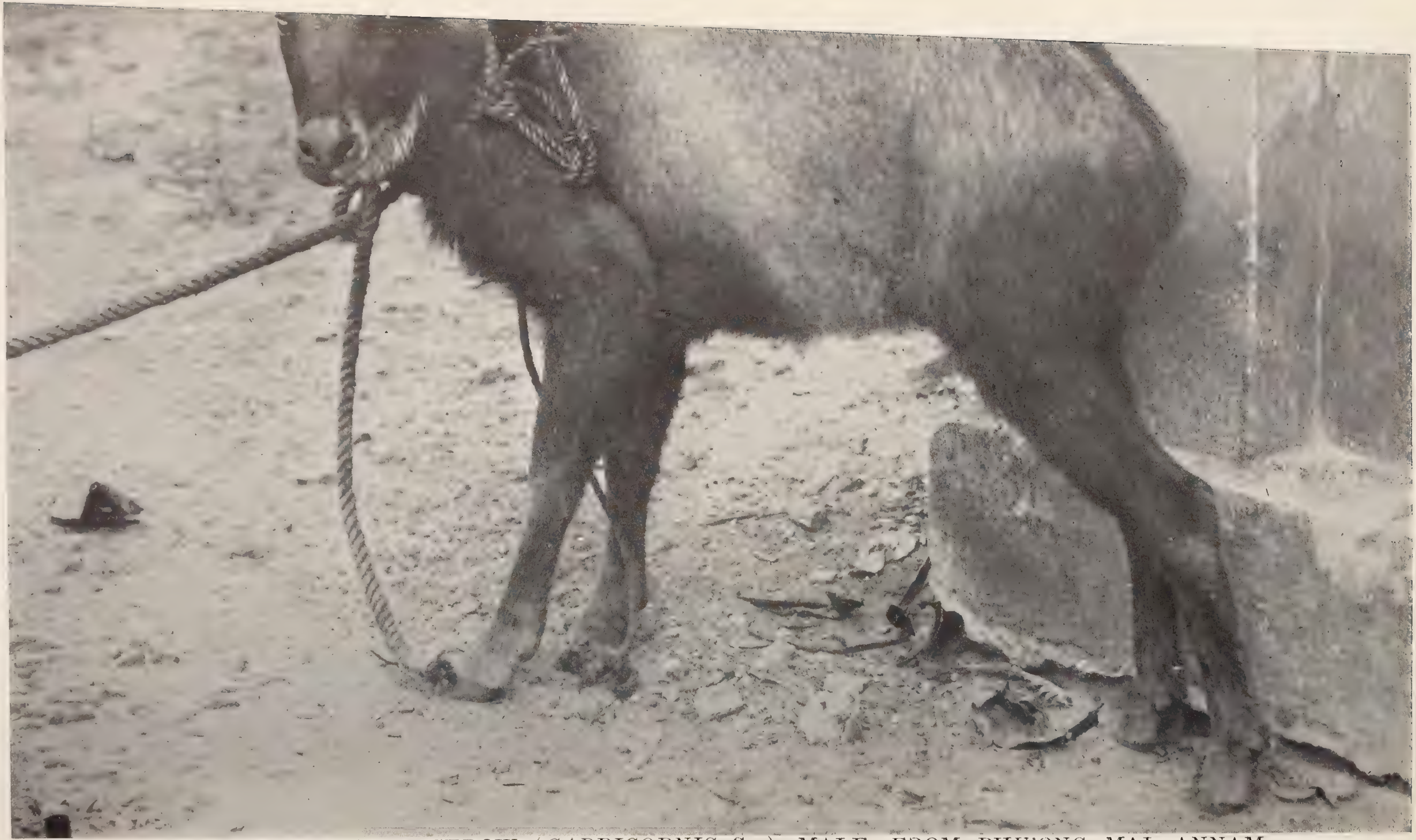
The Annamite name of the animal is "con dê nui" which really signifies "wild horse." The French of Indo-China, however, call it "mouflon," and French sportsmen state that it occurs along the coast of central Annam, on a small island opposite Tourane, called "Ile aux mouflons," also on the islands of the Bay of Along and in the neighbourhood of Ninh-Binh, Tonkin. (The Bay of Along and Ninh-Binh lie due East and South-East of Hanoi respectively).

The occurrence of a "Wild Goat," or more correctly, of a "Goat-Antelope" or "Serow," in South-Eastern Asia has been known for more than a hundred years. The first description of a Serow is by William Marsden, who in his "History of Sumatra," 1st edition, 1783, p. 93, says:

"Goat: *Cambing*. Beside the domestic species, which is in general small, and of light brown color, there is the *cambing ootan*, or goat of the woods. One which I saw was three feet in height, and four feet in length of the body. It had something of the gazelle in its appearance and, excepting the horns, which were about six inches long, and turned back with an arch, it did not much resemble the common goat. The hinder parts were shaped like those of a bear, the rump sloping round off from the back. The tail was very small, and ended in a point. The legs clumsy. The hair, along the ridge of the back, rising coarse and strong, almost like bristles. No beard. Over the shoulder was a large spreading tuft of greyish hair: the rest of the hair black throughout. The scrotum globular. Its disposition seemed wild and fierce, and it is said by the natives to be remarkably swift." Bechstein, in his "Allgemeine Übersicht der vierfüssigen Thiere," 1799, Vol. I, p. 98, based upon this description his *Antilope sumatraensis*, and Raffles (Transactions, Linnean Society, Vol. XIII (1822), p. 266) and others corroborated the occurrence of a Serow in Sumatra. Raffles says that he kept one for months, but found it impossible to tame it, and that it finally died from impatience of confinement.

The Raffles Museum has one specimen of a Serow from Sumatra, obtained at Lebong Tandai, near Benkoelen, and presented in August of last year (1917) by Messrs. P. Jansen T. Pzn and C. J. Brooks. According to Mr. Brooks the animal seems to be common in the neighbourhood, as he once saw a number of Serow skins at a native auction at Tijroep. This Sumatran form appears by Blanford, Lydekker, S. S. Flower, Butler, Rowland Ward and others under the name of *Nemorhœdus sumatrensis*, though Pocock has since shown that it should be known as *Capricornis sumatraensis*. (See his papers in A. M. N. H. (8) Vol. I. pp. 183-188, and P. Z. S. 1908, pp. 173-202).

To Dr. N. Wallich who had so many connections with Singapore, belongs the honor of having exhibited before the Zoological Society, London, the first specimen of a Serow from the mainland of Asia. This was in January 1832, and the skin had been transmitted to him by Mr. B. H. Hodgson, British Resident at Katmandoo (or Khatmandu), Nepal. Hodgson's detailed description of this animal, under the name of *Antilope bubalina*, is found in the Proceedings of the Zoological Society, Part II (1832), pp.



PHOTOGRAPH OF A SEROW (*CAPRICORNIS* SP.), MALE, FROM PHU'ONG MAI, ANNAM, TAKEN BY M. GABRIEL SAINT—POULOF, FEBRUARY 1917.

12-14. He says: "It is seldom found in herds, however small, and the grown males usually live entirely alone, except in the breeding season. Of all the Deers or Antelopes of these hills (viz: in Nepal) it is the most common. It tenants the central region equidistant from the snows on the one hand, and the plains of India on the other." This Antelope has now to be called *Capricornis sumatraensis* sub-sp. *thar* Hodgson (see Pocock, P. Z. S. 1908, p. 176).

The first record of a Serow inhabiting the Malay Peninsula is, as is to be expected, by Theodore Cantor, in his "Catalogue of Mammals inhabiting the Malayan Peninsula and Islands," originally published in the Journal, Asiatic Society of Bengal, Vol. XV (1846), p. 272, and subsequently reprinted in "Miscellaneous Papers relating to Indo-China," ser. 1, Vol. II (1886), p. 57. However, his remarks are disappointingly meagre. He merely says: "It appears to be numerous on the Malayan Peninsula, but exceedingly difficult to obtain, as it frequents the steepest hilly localities, and is very shy and active." This Malay Peninsular Serow which is now well-known, is, if not identical with, so at least closely allied to, the Sumatran form, and two geographical races of it have been described, viz: *Capricornis sumatraensis swettenhami,* Butler and *Capricornis sumatraensis robinsoni,* Pocock. These, together with five other sub-species, are discussed by Pocock, Proc. Zool. Soc., London, 1908, pp. 173-190.

The Raffles Museum possesses two pairs of horns of this animal, one from Tanjong Rambutan, Perak, and the other from Chankat Mandai, Ulu Kinta, both presented by Mr. E. M. Schwabe in 1905, and the sportsman will find in George Maxwell's "In Malay Forests" full directions as how to obtain this elusive "Wild Goat" or at least to get within a mile of it! (see pp. 167-185). Locally it is known as "Kambing gerun," besides as "Kambing utan," the name recorded by Marsden.

Further species of Serow were recorded from other parts of South-Eastern Asia, from Kashmir, the Himalayas, China, Tonkin and Burmah, Father Heude especially distinguishing himself by describing no less than 24 species from China and Tonkin alone which in the eighties and nineties of last century he with the help of numerous other Catholic Missionaries had collected. The specimens were deposited in the Sikawei Museum, Shanghai. Sowerby (P. Z. S. 1917 pp. 7-26) undertook the trouble of working through this vast collection and succeeded in reducing Heude's 24 species and David's one species to the following:

Capricornis argyrochætes, Heude. The Province of Chekiang, S. E. China.
,, *vidianus,* Heude. The region of N. E. Ssuchuan and S. Shensi, Central China.
,, *milne-edwardsi,* David. W. Ssuchuan, N. W. Ssuchuan and S. W. Kansu, W. China.
,, *collasinus,* Heude. Kuang-tung Province, S. China.

Capricornis rocherianus, Heude. Along Bay, Tonkin, S. W. China.

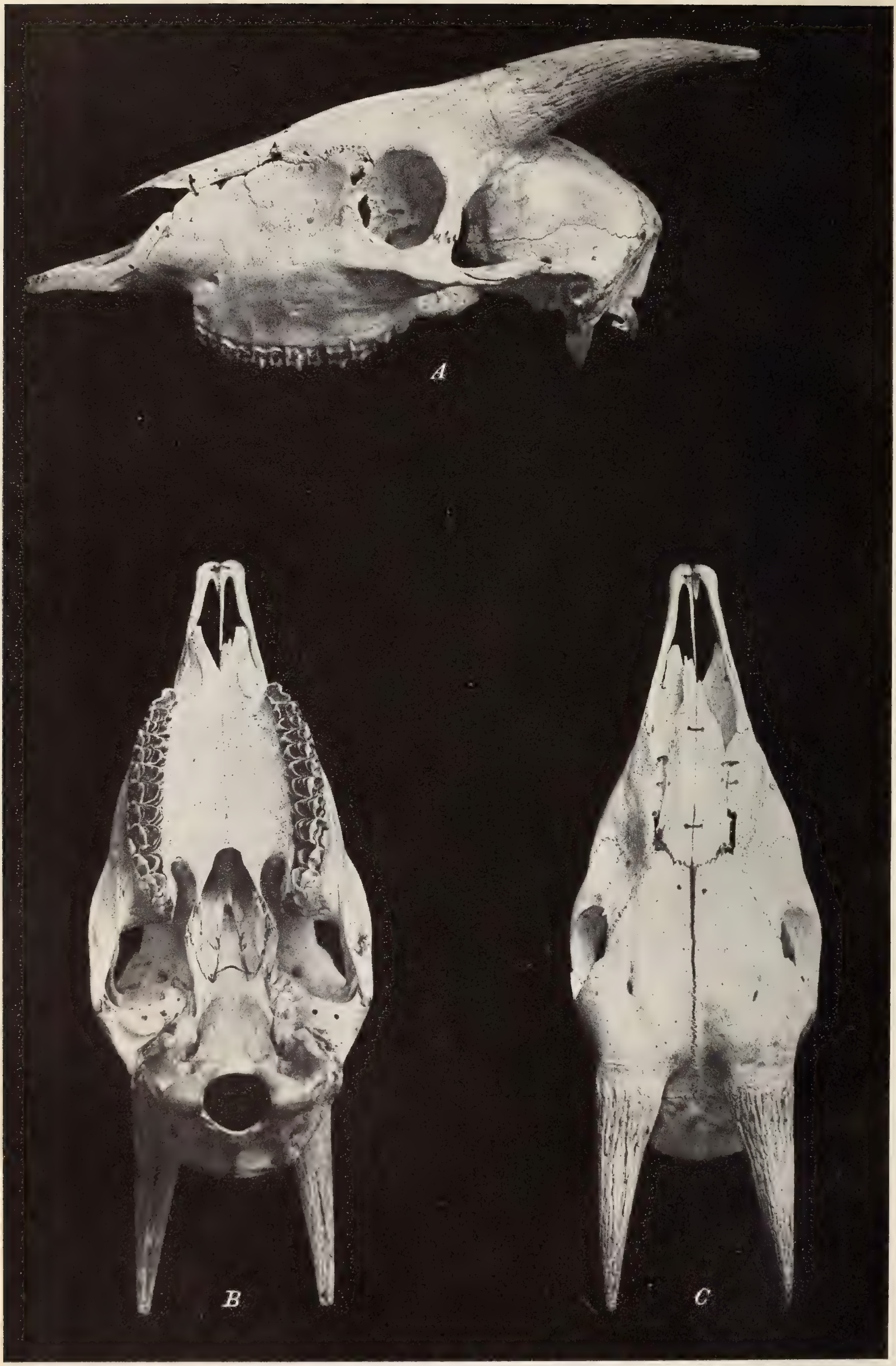
To come now to a description of the Serow from Annam, secured by Messrs. Chochod and Saint-Poulof:

Male; not quite adult, as the condition of the skull shows; coat shaggy; hair coarse; mane well developed. Colour: fore head, from nose to base of horns, rufous; cheeks black; from behind the eyes to base of ears, rusty; back of ears, rusty; inside of ears, white; upper lip, white; under lip, white, enclosing below a median patch of black; beard, white; throat and breast, black; mane long, composed of two sorts of hair: some entirely white, the others, more numerous, white at the base, black distally; belly black, behind with a few grey hair; sides of back with hair white at the base, black distally, producing together a greyish effect; forelegs, black down to the knees, except for a rusty patch at the inside; below knees, rusty, darker in front than behind; hind legs, black down to the hocks, without any grey; below the hocks, rusty brown; tail, black above, white beneath.

Its measurements, taken immediately after death, were: height at the shoulder 821 mm.; total length from between the horns to the tip of the tail 1300 mm.; ears 220 mm.; horns 170 mm.; tail 110 mm.

Pocock, in P. Z. S. 1908, p. 189, gives the measurements of the skulls of four different forms of Serow (*Capricornis sumatraensis*) from Kashmir, Nepal, Chamba (Western Himalayas) and Selangor respectively, and to allow a ready comparison with the skulls of the Serow from Annam and of the above mentioned Serow from Sumatra, presented by Messrs. Jansen and Brooks, I reprint herewith his table, adding the measurements of the two latter Serows. The Sumatran skull, unfortunately, was partly broken, so that two of the measurements could not be taken. It was that of an old male.

The table shows that the Annamite form approaches in its skull measurements nearest the Serow from Chamba, *Capricornis sumatraensis* sub-sp. *rodoni,* Pocock, yet differing from it by being narrower across the premaxillæ, zygomata and the posterior portion of the palate, by its longer, but narrower nasals, and by its greater height at the frontals. The Sumatran skull has in most respects the smallest dimensions, with the exception of the palate which anteriorly is extraordinarily wide. Naturally, a much larger series of skulls would be necessary to arrive at safe conclusions.



SKULL OF A SEROW (*CAPRICORNIS* Sp.) FROM PHU'ONG MAI, ANNAM. × $\frac{1}{3}$.
A, FROM THE SIDE; B, FROM BELOW; C, FROM ABOVE.

SKULL MEASUREMENTS IN MILLIMETRES.

	Kashmir	Nepal	Chamba	Selangor	Sumatra	Annam
Basal length from occipital suture to distal end of premaxillæ	245	241	223	240	?	220
Width across zygomata	130	128	127	117	112	114
„ „ maxillæ	98	98	98	102	85	94
„ between orbits	93	87	78	81	75	75
Median length of frontal	112	105	112	118	101	113
Median length of nasal	94	93	73	103	78	83
Width across nasals ..	50	47	41	48	44	31
Width across premaxillæ (maximum) ..	53	51	50	54	42	42
Width across premaxillæ (distal end) ..	32	31	26	27	25	23
Height from alveolus of molar 2 to summit of frontals	104	94	98	114	97	105
Height from alveolus of premolar 3 to summit of nasals ..	94	84	90	103	90	92
Length of cheek-teeth	90	87	93	92	81	95
Length and width of last molar	20 ; 13	20 ; 16	20 ; 12	21 ; 13	18 ; 12	20 ; 12
Median length of palate to distal end of premaxillæ	162	167	148	161	?	148
Width of palate between last molars ..	60	52	57	50	52	49
Width of palate between first premolars	41	38	38	38	42	37

Going by external characters and using the key given by Pocock (P. Z. S. 1908, p. 190) for identifying his seven geographical races of *C. sumatraensis,* we find, however, that the Serow from Annam differs markedly from the subspecies *rodoni,* the latter having "breast and underside white, and sharply defined from the dark colour of the rest of the body," and that it comes nearest to the sub-species *jamrachi,* from Darjiling, though differing from it by its forehead being rufous, instead of coal black, by its coat being shaggy, instead of 'short at all seasons,' and other characters.

Neither does Sowerby's revision of Heude's 24 species (see P. Z. S. 1917, pp. 7-26) lead to a satisfactory conclusion as to the specific position of our Serow. According to locality it ought to be *Capricornis rocherianus* Heude, from Along Bay, Tonkin, but this latter species is distinguished by its creamy-white stockings. Mr. Kloss who has been working up the Mammals of Siam, tells me that he has from there Serow skins with brown legs which he considers to come under *milne-edwardsi* or *vidianus*. So it is very possible that the Serow from Annam may belong to one of these two species. But more material and much more study will be required before this question can be settled satisfactorily.

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Some Singapore Boletinae.

BY

N. PATOUILLARD AND C. F. BAKER.

On August 21st, 1917, during a period of frequent showers, an hour's work in a narrow strip on the east side of the Gardens' Jungle in the Singapore Botanical Gardens produced specimens of sixteen species, representing four generic groups, of the Boletinae. It would not have been possible to duplicate this remarkable showing on any subsequent day of the year. Evidently there had been optimum conditions for Boleti just previous to August 21st.

Diagnoses of all these species were prepared from the living plants, measurements taken from many specimens, and vertical section outlines made, after which the material was rapidly and carefully dried. The species fall into four generic groups, provided *Boletopsis* be considered of generic value. The genus *Phylloporus* of Quelet, with spores formed by anastomosing lamellae, is well represented by *Phylloporus malaccensis* (No. 5004). *Strobilomyces* finds a characteristic representative in *S. porphyrius* (No. 5002). The genus (or subgenus) *Boletopsis* is represented by three very distinct species, *B icterinus, B. singaporensis,* and *B. corrugatus.*

Among the sixteen species there are represented three distinct types of spores: 1st, the usual type for *Boletus,* including those of most of the species: 2nd, a banded type, the spores bearing narrow longitudinal bands in relief, as in *Boletopsis singaporensis* and *Strobilomyces prophyrius*: 3rd, a reticulate type, the spores being strongly reticulate-alveolate, a remarkable feature found also in *Tuber,* but quite unique in *Boletus.* This type is represented by one species, *Boletus retisporus.*

All of these species have been compared, with great care, with species which have been recorded from the Far East by Berkeley, Petch, and others, and especially with those described by Massee from the collections of Ridley. With the full descriptions taken from living specimens, it has been found impossible to crowd any of these species into the congeries of forms under previously recorded names. Indeed, it would be only the purest guess-work, with any comparisons of existing herbarium material. It must be understood that most of the conspicuous characters of the living plants are evanescent and that but the remotest conception of the living plant can be had from a dried specimens unaccompanied by detailed data taken from the living plant. Colored drawings alone will not suffice, since many clearly diagnostic characters cannot be shown in such drawings. Even the simple process of drying, which was uniform for all the species, brought out various striking differences. For instance in *Boletus spinifer* and *Boletus umbrinellus,* as well as in most of the other species, the flesh is very firm and holds its form well while drying, whereas in *Boletus retisporus* and *Strobilomyces porphyrius,* the flesh softens very rapidly, collapse taking place before drying is accomplished. On the other hand, one species, *Boletus tristis,* dried out very readily and rapidly without the aid of heat, just as it lay, on an open table.

The characterisations of all the species under consideration are presented herewith in synoptical form, using for separation, where possible, the most readily recognizable characters, so that other students may easily follow up the work and make more extensive comparisons of living material and of material from other parts of the Peninsula.

Section I. Young plants with a distinct veil, and a persistent or evanescent, fibrous or gelatinuous, annulus; springing from white mycelium (*Boletopsis*).

A. Veil gelatinous; pileus pale brown, radially irregularly shallowly corrugate, and centrally short tomentose, the outer half viscid; hymenium pale yellow; stipe brownish, paler above, short shaggy and covered with gelatinous droplets; flesh cream colored, with a reddish tint near upper surface of pileus; pileus 4—4.5 cm. in diameter; stipe 6—12 mm. × 6 cm.; spores elliptical, very pale, nearly white, 12 × 5 microm.; tomentum of pileus forming an erect pile, 100—300 microm. in height; plant occurring in large tufts (No. 5003).

Boletopsis corrugatus, sp. nov.

AA. Veil fibrous.

B. Veil thick, arachnoid, bright yellow; annulus appressed and adherent, ragged scaly; pileus and stipe sulphur yellow, mealy, opaque; hymenium pale leather colored; stipe becoming minutely brownish scaly; flesh of pileus white, of stipe yellow; pores shallow, minute, subterete, septa thick and dark lined; hymenial surface narrowly and slightly sinuate where it joins stipe; pileus 2.5—3 cm. in diameter; stipe 3—5 mm. × 4—5.5 cm.; spores elliptical, smooth, pale in color, 8—14 × 4—5 microm.; hyphal threads of the veil with brown granulations (No. 4991).

Boletopsis icterinus, sp. nov.

BB. Veil thin, membraneous, viscid, at first white, finally leaving a completely separated and ragged and evanescent annulus; pileus smooth, shining, slightly viscid, and light bay in color; hymenium sordid yellow, stipe shining light bay, pale above; flesh of pileus faintly yellowish, of stipe white changing; pores large, deep very irregular, with some secondary septa; septa thin and unlined; hymenial surface narrowly but very deeply sinuate next stipe, the stipe free to the pileus; pileus 4.5 cm. in diameter; stipe 6—12 mm. × 14 cm.; spores brown, ovoid, with narrow longitudinal raised bands, 13—15 × 8—10 microm. (No. 4992).

Boletopsis singaporensis, sp. nov.

Section II. Without distinguishable veil or annulus even in young plants; springing from either white or yellow mycelium (*Boletus, Phylloporus, Strobilomyces*).

A. Pores large, very irregular and largely compound, with thin septa and with short secondary septa subdividing the larger pores into two or three.

B. Hymenial surface decurrent on to stipe; plants solitary, from bright yellow mycelium; pileus leather colored, minutely roughened, opaque; hymenium sordid yellowish; stipe pale below, thickly streaked with reddish brown above; flesh of pileus and stipe cream colored, not changing; pileus 4.5—6 cm. in diameter; stipe slender 4—8 mm. × 3.5—5.5 cm.; spores elliptical, smooth, very pale, 6—8 × 4—4.5 microm. (No. 4993).

Boletus aureo-mycetinus, sp. nov.

BB. Hymenial surface deeply and rather broadly sinuate next stipe; plant in groups of 2 to 4 or more, from a white mycelium; pileus rich velvety bay; hymenium grey; stipe pale brownish nearly smooth; flesh of pileus and stipe white, not changing; pileus 7—10 cm. in diameter, stipe greatly inflated, 2.5—4.5 cm. × 8—10.5 cm.; spores ovoid, smooth, nearly white, 6 × 5 microm.; cystidia numerous, very prominent, rigid and reddish, 60 × 10 microm., thus resembling the cystidia of Hymenochaete. (No. 4994).

Boletus spinifer, sp. nov.

AA. Pores large, to medium, or small, more regular, largely simple.

B. Flesh not changing to blue on bruising; pileus smooth or nearly so.

C. Plant springing from white mycelium.

D. Pileus some shade of brown or sooty brown; stipe white to brownish or drab.

E. Pileus minutely mealy or velvety, dry, opaque, never smooth and shining.

F. Pileus sooty-mealy, or velvety, quite blackened with this over the umber ground color.

G. Flesh white, not changing.

H. Pileus umber to chocolate brown, more or less sooty mealy centrally; hymenium cream colored, often with a slight yellowish tint, its surface next stipe very slightly sinuate or nearly adnate; stipe umber brown, white at top and bottom; pileus 2.5—3.5 cm. in diameter, stipe 5—8 mm. × 4.5—5.5 cm.; spores fusiform, light brown, 12—14 × 4 microm. (No. 4995).

Boletus tristis, sp. nov.

HH. Pileus deep sooty-velvety throughout; hymenium pale yellow, its surface next stipe distinctly but narrowly sinuate; stipe reddish brown, base white; pileus 5.5 cm. in diameter; stipe 9—10 mm. × 7 cm.; pores very small and nearly terete; spores elliptic-cuneiform, yellowish brown, 12 × 6 microm. (No. 5005).

Boletus phaeocephalus, sp. nov.

GG. Flesh cream colored to brownish, blackening on exposure; pileus sooty and sooty-mealy; hymenium pale bay; stipe sooty; pileus 4.75 cm. in diameter; stipe 7—10 × 6 cm.; spores fusiform, pale, 10—12 × 3—4 microm.; cystidea abundant, pale, 30 × 12 microm. (No. 4996).

Boletus nigricans, sp. nov.

FF. Pileus not sooty-mealy, or sooty-velvety, color paler; flesh white, not changing.

G. Stipe finely or coarsely scrobiculate, at least in part.

H. Stipe finely scrobiculate above; surface of pileus usually minutely reticulately broken; pileus dark umber-brown; hymenium pale

umber, its surface nearly adnate to stipe; stipe white below to pale umber above; pileus 6—8 cm. in diameter; stipe 7—12 mm. × 7—10 cm. spores elliptical, pale brown, 12 × 3—4 microm. (No. 4997).
Boletus umbrinellus, sp. nov.

HH. Stipe deeply, irregularly, very coarsely, sulcate-scrobiculate throughout, more finely above; surface of pileus not broken, pale yellowish brown, darker centrally; hymenium pale drab; stipe cream colored; pileus 4 cm. in diameter; stipe 10—12 mm. × 5 cm.; spores fusoid, pale, 12 × 6 microm. (No. 5004).
Phylloporus malaccensis, sp. nov.

GG. Stipe not scrobiculate; surface of pileus velvety and unbroken.

H. Stipe smooth; pileus leather colored, smooth, opaque; hymenium very pale drab; stipe leather colored, smooth, paler above; pileus 3.5—6.5 cm. diameter; stipe 5—10 mm. × 4.5—6.5 cm.; spores elliptical, 7—9 × 4 microm., very pale (No. 4998).
Boletus veluticeps, sp. nov.

HH. Stipe finely, openly, transverse scaly throughout, finer at top and bottom; pileus drab throughout, stipe blue-grey; hymenium yellowish brown, its surface next stipe very narrowly sinuate; flesh pale drab throughout, slightly darkening on exposure; pileus 4 cm. in diameter; stipe 7—8 mm. × 6.5 cm.; spores elliptical, pale, 12—15 × 4 microm. (No. 5006).
Boletus cyanopus, sp. nov.

EE. Pileus perfectly smooth, shining, slightly viscid, pale leather colored; hymenium sordid yellow; stipe pale sordid leather colored, darker and shallowly somewhat reticulately fibrillose above; flesh cream colored, not changing; pileus 3.5—4.5 cm. in diameter; stipe 5—10 mm. × 4—5 cm.; spores elliptical, very pale, 8—10 × 4—5 microm. (No. 4999).

Boletus viscidulus, sp. nov.

DD. Pileus and stipe brick red, quite smooth, and opaque; hymenium yellow, surface next stipe rather deeply sinuate; stipe shallowly reticulate-fibrillose above; flesh of pileus pale yellow, of stipe bright yellow becoming reddish on exposure; pileus 4—9 cm. in diameter; stipe 8—17 mm. × 7—10 cm.; spores brown, elliptical, 12 × 9 microm. reticulate-alveolate, the alveolae profound and 4, 5, or 6 sided (No. 5000).

Boletus retisporus, sp. nov.

CC. Plant springing from bright yellow mycelium; flesh of stipe and pileus yellow, not changing; pileus yellowish brown, opaque, nearly smooth; hymenium pale leather colored, slightly sinuate; stipe with reddish brown and yellowish shades; pileus 12—14 mm. in diameter; stipe 1.5—2 mm. × 2.5 cm.; spores elliptical, hyaline, 9—12 × 4—5 microm. (No. 5001).

Bolitus pernanus, sp. nov.

BB. Flesh changing to blue on bruising; pileus deeply squarrose, purple scaly, exposing lines of yellow tissue beneath; hymenium sordid yellowish; stipe umber brown, smooth; flesh of pileus above yellow, below and of stipe, cream colored, darkening on exposure; pileus 3.5—4.5 cm. in diameter; stipe 6—8 mm. × 6—9 cm.; spores ocre-colored, elongate elliptical, longitudinally striate, 15—20 × 6—8 microm. (No. 5002).

Strobilomyces porphyrius, sp. nov.

The Position of Gunong Say.

By H. B. Marshall.

Gunong Say, mentioned in this Journal, 1917, p. 265, as one of the localities where James Motley collected, is situated on the right bank of the river Brunei approximately 2¼ miles S. by W. of the town itself which is built on the water in a bend of the river. The hill is directly facing the residency which is on the opposite side of the river and bears nearly due N. E. and 2¼ miles from Gunong Say, so that it is about equidistant from the town and residency. A neighbouring hill is Gunong Sumur, a mile to the S. E. from Gunong Say. It is named on the Admiralty Charts "Hamilton Hill," possibly after some naval man who had been surveying in Brunei. The height of Gunong Say is 760 feet.

They are both conspicuous landmarks and can be seen by steamers plying between Singapore and Labuan.

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Malayan Membracidae.

W. D. Funkhouser.

(Contribution from the Entomological Laboratory of Cornell University.)

Through the courtesy of Professor C. F. Baker, Dean of the College of Agriculture at Los Banos, Philippine Islands, I have been permitted to study a very interesting series of insects of the family Membracidae collected during the Summer of 1917 at Singapore and the Island of Penang.

The collection contains twelve new species and records of a number of species of Walker, Distant, Melichar and Bierman which form a valuable addition to our knowledge of the distribution of the Indian homopterous fauna.

All of the species listed were collected by Professor Baker.

1. **Xiphistes orientalis,** sp. nov.

Uniform reddish-brown; thick bodied; horns heavy and blunt; tegmina opaque; scutellum largely exposed.

Head dark brown with faint median ferruginous line, rugous, closely and finely punctate, sparingly pubescent with brownish hairs; eyes large, prominent, grayish-white; ocelli prominent, pearly, about equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; clypeus much longer than wide, extending for more than half its length below inferior margin of face, pubescent, tip rounded.

Prothorax black-brown, rough, very pubescent with short, reddish-brown hairs which almost entirely conceal the weak punctuation; humeral angles very large, heavy, triangular and blunt, projecting directly laterad; suprahumeral horns short, very stout, about as long as their width at base and about as far apart at their bases as the basal width of one horn, projecting upward, outward and slightly forward, upper surfaces very rough and nodulose with irregular carinae, tips blunt, rounded and somewhat deflexed; median carina strongly percurrent; posterior process long, almost straight, slightly deflexed at tip, strongly centrally carinate, base laterally carinate on each side, tip gradually acute and extending about half way between internal angles and tips of tegmina, base only lightly touching scutellum; scutellum plainly visible on each side.

Sides of thorax thickly pubescent with reddish hairs. Tooth of prothorax very prominent; that of mesothorax very weak.

Tegmina opaque, reddish-brown, slightly pubescent and punctate at base, veins prominent, tip acute, marginal border very narrow or lacking. Hind wings with four apical areas.

Undersurface of body very dark brown, almost black. Ovipositor black. Ventral surface of abdomen somewhat pubescent with whitish tomentose patches at base.

Legs dark brown; femora swollen and smooth; tibiae triangular and finely spined; tarsi ferruginous.

Length 8 mm.; width between extremities of suprahumeral horns 4 mm.

Type: female (Baker's duplicate No. 9084).

Locality: Singapore.

2. **Centrochares horrificus,** Westwood.

1837.	Centrotus horrificus	Westw. Proc. Zool. Soc. 130.
1841.		Guer. Mag. Zool. Ser. 2. III. Ins. Pl. 82.
1842.		Lefebvre Ann. Soc. Fr. Bull. 1842. p. xxi.
1851.	Pterygia horrificus	Walker List Hom. Brit. Mus. 500. 9.
1852.		Walker List Hom. IV. Tab. 4. figs. 4 and 5.
1866.	Centrochares horrificus	Stal Analect. Hem. 386.
1870.		Stal Hem. Phil. 731. 1.
1903.	Pterygia horrifica	Buckt. Mon. Memb. 73. Pl. 12. fig. 5.
1903.	Pterygia spinula	Buckt. Mon. Memb. 73. Pl. 12. fig. 4.
1903.	Centrochares horrificus	Buckt. Mon. Memb. 266.
1914.		Funkh. Journ. Ent. & Zool. VI: 2. p. 69. 6.
1915.		Dist. Ann. Mag. Nat. Hist. 16: 94. p. 327.
1915.		Funkh. Rev. Phil. Memb. 370.
1918.		Funkh. Notes Phil. Memb. 23.

One specimen taken at Singapore and bearing Baker's duplicate No. 8779. Apparently this species has a wide distribution throughout eastern Asia and the East Indies. The variation shown in examples studied does not warrant the splitting up of the species.

3. **Leptocentrus leucaspis,** Walker.

1858.	Centrotus leucaspis	Walk. List. Hom. B. M. Suppl. 158.
1903.	Leptocentrus leucaspis	Buckt. Mon. Memb. 235. Pl. 53. figs. 3a, b.
1907.		Dist. Fauna Brit. Ind. 30. 2139.
1915.		Funkh. Rev. Phil. Memb. 379.
1918.		Funkh. Notes Phil. Memb. 37.

One specimen bearing Baker's duplicate No. 8771 taken at Singapore.

4. **Leptocentrus obortus,** Distant.

1916.	Leptocentrus obortus	Dist. Fauna Brit. Ind. App. 154. 3347.

Two specimens (Baker's duplicate numbers 8772 and 8976) collected at Singapore.

5. **Leptocentrus longispinus,** Distant.

1907.	Leptocentus longispinus	Dist. Fauna Brit. Ind. 31. 2141.

One male and three females all collected at Singapore.

6. **Centrotypus asmodeus,** Distant.

1907.	Centrotypus asmodeus	Dist. Fauna Brit. Ind. 36. 2150.

One female (Baker's duplicate No. 8978) taken at Singapore.

7. **Nilautama minutispina,** sp. nov.

Black, punctate, pubescent: posterior process very short and slender; tegmina smoky-hyaline, wrinkled; eyes red; scutellum white tomentose.

Head twice as broad as long, black, finely punctate, densely pubescent with short golden hairs; base sinuate; eyes red; ocelli not prominent, gray, equidistant from each other and from the eyes and situated on a line above centers of eyes; clypeus twice as long as wide, extending for two-thirds its length below the inferior margin of the face, tip pubescent and rounded.

Prothorax narrow, black, finely punctate, sparingly pubescent with golden hairs; metopidium narrow, much sunken below suprahumeral horns; humeral angles short, blunt, not prominent; suprahumeral horns strong, very wide as seen from above, extending almost directly outward, somewhat upward and slightly backward, triquerate, tips blunt and recurved; posterior process very slender and short, extending not farther than tip of scutellum, arising well above base of pronotum, tricarinate, acute, nearly straight, tip very slightly upraised. Scutellum entirely exposed, triangular, as long as its width at base; base thickly covered with white tomentose pubescence; tip rounded in general outline, notched with the point on each side of notch extended into a fine tooth.

Tegmina long, narrow, smoky-hyaline, much wrinkled; base white and punctate; costal margins ferruginous; veins prominent, somewhat hairy; tips rounded, extending well beyond extremity of abdomen.

Sides and undersurface of the thorax white tomentose; undersurface of abdomen brown.

Legs reddish-brown, slender, hairy; tarsi flavous.

Length 7 mm.; width between tips of suprahumerals 4 mm.

Type: female (Baker's duplicate No. 9086).

Locality: Island of Penang.

8. **Anchonoides variegatus,** sp. nov.

Golden brown with white tomentose stripes; tegmina smoky-hyaline with broad, clear band across centers and with bases brown; posterior process strongly sinuate with two elevations behind suprahumeral horns.

Head wider than long, rugose, brown with white tomentose patches, finely and closely punctate, densely pubescent; base sinuate; eyes brown, reflexed; ocelli prominent, brown, farther from each other than from the eyes and situated above a line passing through centers of eyes; clypeus much longer than wide, sublobate, extending for more than two-thirds its length below the inferior margin of the face, densely white pubescent, tip rounded; inferior margins of genae produced in blunt angles; antennae prominent.

Prothorax brown, finely punctate, sparingly pubescent; metopidium somewhat nodulate; four white tomentose lines on cephalic prothorax, one arising above each eye, extending dorsomesad to meet the line from the other side at the median carina at a point about even with the bases of the suprahumeral horns; another originating beneath each humeral angle and extending upward between the suprahumeral horns and backward to base of posterior process; a narrower line extending along lateral margin of pronotum from beneath the suprahumeral horn to base of posterior process. Humeral angles prominent, blunt, triangular, extending outward about half as far as the suprahumeral horns. Suprahumeral horns heavy, sinuate, extending outward and a little upward, upper middle portion much elevated and nodulate, tips obliquely truncate with posterior angle produced. Median carina strongly percurrent. Posterior process heavy, nodulate, thrown upward in two strong loops, one above the scutellum and one above the internal angles of the tegmina, the anterior elevation about twice as high as the posterior; tip extending almost as far as the end of the abdomen but not reaching the extremities of the tegmina. The entire dorsal outline as seen from the side showing three elevations, one between the suprahumeral horns, one above the scutellum and one above the internal angles of the tegmina. Scutellum entirely exposed, sinuate, white tomentose, tip truncate.

Tegmina divided into four color areas, the transverse bands being about equal in length. The base is brown, entirely opaque, punctate and slightly pubescent; the second band is smoky-hyaline; the third band entirely clear; the remainder of the tegmen amber-hyaline. The veins are prominent, those in the apical area somewhat nodulate.

Sides and undersurface of thorax uniform dark brown with white tomentose patches; tibiae ferruginous shading to flavous at distal extremities; tarsi flavous.

Length 5 mm.; width between tips of suprahumerals 4 mm.

Type: female (Unique type in Professor Baker's collection).

Locality: Singapore.

This species shows a much higher posterior elevation on the posterior process and much shorter and less elevated suprahumeral horns than *A. typicus* Distant, the type of the genus.

9. **Ebhul varius,** Walker.

1858.	Centrotus varius	Walk. List Hom. Brit. Mus. Suppl. 162.
1869.	Leptobelus varius	Stal Bid. Memb. Kan. 285. 6.
1885.		Atkins J. A. S. B. 54. p. 82.
1907.	Ebhul varius	Dist. Fauna Brit. Ind. 59. 2189.
1914.		Lamborn Trans. Ent. Soc. Lond. 1913. p. 470.
1915.		Funkh. Rev. Phil. Memb. 393.
1916.		Dist. Fauna Brit. Ind. App. p. 169.

Five specimens, all females. Two taken at Singapore and three collected from the Island of Penang.

10. **Sipylus dilatatus,** Walker.

1851.	Centrotus dilatatus	Walk. List Hom. B. M. 630. 74.
1914.	Sipylus nodipennis	Funkh. Journ. Ent. & Zoo. VI: 72. 15. fig. 5.
1915.		Funkh. Rev. Phil. Memb. 392. Pl. 2. fig. 15.

1916.	Sipylus dilatatus	Dist. Rhynchotal Notes. 330.
1918.		Funkh. Notes Phil. Memb. 29.

Two females and one male, all from Singapore.

11. **Tricentrus assamensis,** Distant.

1907.	Tricentrus assamensis	Dist. Fauna Brit. Ind. 57. 2186.

Three specimens, all females. Two from the Island of Penang and one from Singapore.

12. **Tricentrus albomaculatus,** Distant.

1907.	Tricentrus albomaculatus	Dist. Fauna Brit. Ind. 56. 2183.
1914.		Kershaw Ann. Soc. Belg. 37. 191-201 pp. figs. 1-13.
1916.		Dist. Fauna Brit. Ind. App. 166.

Four specimens. One female from the Island of Penang; one female and two males from Singapore.

13. **Tricentrus resectus,** Distant.

1916.	Tricentrus resectus	Dist. Fauna Brit. Ind. App. 167. 3370.

Three specimens. One male and one female from Singapore; one female from the Island of Penang.

14. **Tricentrus gibbosulus,** Walker.

1858.	Centrotus gibbosulus	Walker Ins. Saund. 80.
1886.		Atkins J. A. S. B. 55. p. 198.
1906.		Oshan. Pal. Hem. 43. 159.
1907.	Tricentrus gibbosulus	Dist. Fauna Brit. Ind. 53. 2178.
1914.		Funkh. Journ. N. Y. Ent. Soc. XXII: 3. 238.
1916.		Dist. Fauna Brit. Ind. App. 167.

Six specimens. Three males from Singapore; two males and one female from the Island of Penang.

Walker described a second *Centrotus gibbosulus* in 1868 (Journ. Linn. Soc. Zoo. X: 187) which Distant has made the type of his new genus *Maurya* (Ann. and Mag. Nat. Hist. Ser. 8. Vol. 17. p. 326. April, 1916).

15. **Tricentrus spinicornis,** sp. nov.

Black, punctate, pubescent; suprahumeral horns thin, sharp and spinelike; posterior process extending beyond tip of abdomen; tegmina fuscous-hyaline, base black; legs brown.

Head broader than long, black, densely pubescent with silvery hairs which conceal the fine punctuation; base sinuate, much higher in middle; eyes prominent, black-brown; ocelli prominent, amber-colored, shining, glassy, somewhat farther from each other than from the eyes and situated slightly above a line drawn through centers of eyes; clypeus about as broad as long, projecting for about half its length below inferior margin of face, tip rounded and very hairy.

Prothorax uniform black, finely punctured, thickly pubescent with silvery hairs; humeral angles weak, triangular, blunt; suprahumeral horns long, slender, sharp, ridged, extending about equally upward and outward and slightly turned backward at tips, distance between bases 1.7 mm., upper surface of horn centrally longitudinally carinate; median carina percurrent; posterior process long, gradually acuminate, tricarinate, extending slightly beyond tip of abdomen and well beyond internal angles of tegmina.

Tegmina fuscous-hyaline, base black and punctate, costal margin somewhat pubescent, veins prominent.

Undersurface of body very dark brown, almost black. Legs light brown; tibiae finely spined; hind trochanters armed with strong teeth.

Length 6 mm.; width between tips of suprahumerals 5 mm.

Type: female (Baker's duplicate No. 8775). Type in author's collection; two paratypes in Professor Baker's collection.

Locality: Singapore.

Three specimens were examined, all females. Two were from Singapore and one from the Island of Penang.

16. **Tricentrus brunneus**, sp. nov.

Near the preceding but smaller and differing particularly in the size and shape of the suprahumeral horns.

Uniform golden brown, finely punctate and pubescent with silvery hairs; suprahumeral horns short, blunt, tricarinate; posterior process reaching tip of abdomen; tegmina smoky-hyaline with base black.

Head wider than long, brown, completely covered with fine white pubescence; base rounded; eyes very large, prominent, brown; ocelli protruded, pearly, about equidistant from each other and from the eyes and situated slightly above an imaginary line drawn through centers of eyes; clypeus very long, projecting for almost its entire length below inferior margin of face, tip covered with long, straight, white hairs; inferior margin of face only slightly sinuate, almost truncate; antennae very slender.

Prothorax uniform brown, finely punctate, closely pubescent with short silvery hairs; humeral angles prominent, triangular, extending outward almost half as far as the suprahumeral horns; suprahumeral horns short, slender, tips blunt, anterior, dorsal and posterior surfaces carinate, extending outward and upward, about as far apart at bases as the length of one horn; posterior process long, slender, straight, extending almost to tip of abdomen, closely impinging on scutellum, tip darker.

Tegmina smoky-hyaline, wrinkled, base black-brown and punctate, veins prominent, slight dark brown marking at apicalcostal margin.

Undersurface of body very dark brown, almost black. Hind trochanters armed with strong teeth. Legs uniform light brown; femora smooth; tibiae triquerate and bearing at edges fine spines.

Length 5.5 mm.; width between extremities of suprahumeral horns 3.5 mm.

Type: female (Baker's duplicate No. 8774).

Locality: Singapore.

17. **Tricentrus truncaticornis,** sp. nov.

Short, heavy-bodied, black; pronotum as seen from above about as broad as long; suprahumeral horns very long, equal in width throughout length, tips squarely truncate; tegmina ferruginous-hyaline, bases black, veins slightly nodulate.

Head much wider than long, black, thickly punctate, closely pubescent; base strongly sinuate; eyes white tinged with reddish which makes them very prominent as compared with the black head and body; ocelli pearly, about equidistant from each other and from the eyes and situated slightly above a line passing through centers of eyes; clypeus as wide as long, tip rounded and practically continuing the sinuate inferior marginal outline of the face.

Thorax black; punctate, sparingly pubescent; metopidium wider than high; humeral angles very inconspicuous, almost hidden under the large suprahumeral horns; suprahumeral horns long, broad, flattened, as far apart at their bases as the width of the head, longitudinally striate above, tips squarely cut off at right angles leaving a truncate end as wide as the base; posterior process short, barely reaching internal angles of tegmina, base wide, extremity suddenly narrowed to form an acute tip.

Tegmina ferruginous-hyaline, so wrinkled between veins as to be almost opaque; base black and punctate; veins prominent and bearing scattered nodules.

Legs and undersurface of body uniform black with scattered pubescence. Hind trochanters armed with strong, prominent teeth.

Length 6 mm.; width between extremities of suprahumeral horns 6 mm.

Type: female (Baker's duplicate No. 8773).

Locality: Singapore.

The foregoing species is close to *T. auritus* which Buckton described as *Otaris auritus* from Sumatra (Buckton. Monograph of the Membracidae, p. 429. Pl. 59. figs. 1, 1a. 1903), but differs decidedly in size and in the comparative proportions of the suprahumeral horns and the posterior process.

18. **Centruchus laticornis,** sp. nov.

Resembling the preceding species in general appearance but differing in having unarmed hind trochanters which I believe is a sufficient generic character to distinguish the genera *Tricentrus* and *Centruchus* which are in other respects very similar.

Body subtriangular; suprahumeral horns broad and flat with truncate tips; posterior process short and narrow; tegmina ferruginous with faint median white band; entire body largely marked with white tomentose patches.

Head wider than long, black, rugose, finely punctate, sparingly pubescent; base regularly and evenly rounded; eyes prominent, brown; ocelli conspicuous, pearly, a little farther from each other than from the eyes and situated well above a line passing through centers of eyes; clypeus longer than wide, trilobed at apex, extending well below the inferior margin of the face, tip rounded and bearing long, stiff, white hairs.

Prothorax black, finely punctate, sparingly pubescent, decorated with irregular white tomentose patches; metopidium much broader than high; humeral angles weak, triangular, inconspicuous; suprahumeral horns long, broad, flattened dorsoventrally, tips squarely truncate, dorsal surface with longitudinal carina slightly behind middle, horns about as far apart at bases as the width of the head; median carina percurrent; posterior process short, uniformly narrow, tricarinate, largely tomentose, tip acute, extending just to the internal angles of the tegmina; scutellum broad, notched, tomentose.

Tegmina ferruginous, wrinkled, subopaque; base brown and punctate; a faint whitish band extending across the central part of tegmina just below the tip of the posterior process; veins prominent and slightly nodulose in apical region.

Undersurface of body black with white tomentose patches. Legs uniformly light ferruginous brown.

Length 6 mm.; width between extremities of suprahumeral horns 6 mm.

Type: female (Unique type in Professor Baker's collection).

Locality: Singapore.

19. **Gargara piceola,** Melichar.

1903.	Gargara piceola	Melich. Hom. Ceylon 122. 1.
1907.		Dist. Fauna Brit. Ind. 60. 2190.

One female from Singapore.

20. **Gargara rubrogranulata,** Bierman.

1910.	Gargara rubrogranulata	Bier. Notes Mus. Leiden 33. 45.

One female from Singapore.

21. **Gargara nitidipennis,** Funkhouser.

1914.	Gargara nitidipennis	Funkh. Jour. Ent. & Zoo. VI: 71. 14.
1915.		Funkh. Rev. Phil. Memb. 399.
1918.		Funkh. Notes Phil. Memb. 32.

Three males and one female from Singapore; one male from the Island of Penang.

The species shows considerable minor variations but I can find no specific characters to separate the Malay material from the type specimens from the Philippine Islands.

22. **Gargara projecta,** sp. nov.

Distinguished by the position of the head which is not deflexed or vertical as in most Membracidae but is projected well forward at the inferior margin.

Uniform brown, punctate, pubescent; head extending more or less forward, not deflexed; tegmina smoky-hyaline, very slightly brown and punctate at base.

Head projected, clypeus farther cephalad than base as seen from a side view, entire frontal outline of head continuing slope of metopidium; brown, smooth, thickly pubescent with fine, short, yellowish hairs; base weakly sinuate; eyes prominent and brown, their inferior margins continuing the almost straight line formed by the inferior margins of face and clypeus; ocelli not prominent, pearly, farther from each other than from the eyes and situated very slightly above an imaginary line passing through centers of eyes; clypeus swollen, convex in front, about as wide as long, tip rounded, somewhat hairy and continuing the general outline of the inferior margin of the face; antennae very thin and inconspicuous.

Prothorax uniform brown, punctate, pubescent; metopidium sloping, somewhat flattened, slightly rugose, broader than high as seen from the front; humeral angles not prominent, smooth, blunt at tips; posterior process long, slender, gradually acuminate, carinate above with median ridge which does not extend over the metopidium, tip extending well beyond the internal angles of the tegmina, darker in color than the rest of process, slightly depressed; scutellum distinct on either side of posterior process but closely impinging upon it.

Tegmina uniform smoky-hyaline, wrinkled, base narrowly brown and punctate, veins prominent, tips rounded and extending just beyond the extremity of the abdomen.

Undersurface of body darker brown, pubescent. Legs the same color as the pronotum; hind trochanters unarmed; tibiae finely spined; tarsi shading to flavous; claws brown.

Length 5 mm.; width between extremities of humeral angles 2.3 mm.

Type: female.

Type locality: Singapore.

Described from six specimens: two females and two males from Singapore and one female and one male from the Island of Penang.

Type (Baker's duplicate No. 8981) and one paratype (No. 8979) in author's collection; allotype and three paratypes in Professor Baker's collection.

23. **Gargara penangi,** sp. nov.

Uniform brown; tegmina slightly mottled; posterior process narrow at base, swollen in middle and acute at apex; sides of thorax white tomentose.

Head much deflexed, as wide as long, brown, thickly covered with yellowish pubescence which almost entirely conceals the faint punctuation; base broadly sinuate; eyes large, prominent, mottled brown, extending almost as far lateral as humeral angles; ocelli prominent, shining, pearly, almost twice as far from each other as from the eyes and situated well above a line drawn through centers of eyes; inferior margin of face sinuate and projected; clypeus longer than wide, extending for half its length below inferior margin of face, tip broadened, rounded, very hairy; antennae very long and very slender.

Prothorax uniform brown, finely punctate, thickly pubescent with yellowish hairs; metopidium convex, slightly depressed above base of head; humeral angles prominent, sub-conical, blunt; highest part of pronotum above humeral angles almost flat; median carina not visible over front of pronotum; posterior process short, not reaching internal angles of tegmina, narrow and constricted at base, swollen and strongly carinate above in middle, suddenly narrowed to acute apex; scutellum well exposed, tomentose at base.

Tegmina amber-hyaline; base brown, punctate and pubescent; irregular brown fascia just behind internal angles.

Sides of head and thorax white tomentose; undersurface of thorax and abdomen brown; tip of ovipositor slightly ferruginous.

Legs brown, femora darker than tibiae which shade into flavous at distal ends; tarsi luteus; claws brown.

Length 4.5 mm.; width between tips of humeral angles 2.1 mm.

Type: female. Male somewhat smaller and darker.

Locality: Island of Penang.

Described from a pair from Penang. Type in Professor Baker's collection; allotype in author's collection.

24. **Gargara triangulata,** sp. nov.

Short, thick, heavy-bodied species; brown with white pubescence; pronotum almost triangular as seen from above; tegmina ferruginous, semi-opaque.

Head wider than long, brown, covered with dense white pubescence; base weakly sinuate; eyes large, prominent, brown; ocelli small, white, shining, glassy, farther from each other than from the eyes and situated well above a line passing through centers of eyes; inferior margined of genae sinuate; clypeus almost as broad as long, extending for half its length below inferior margin of face, tip broadly rounded and only slightly pubescent.

Prothorax uniform brown but so irregularly covered with long white pubescence as to give a fasciate appearance, very finely punctate; humeral angles prominent, swollen, triangular, tips blunt; posterior process heavy and short, extending just beyond internal angles of tegmina, lighter in color at base than at tip, strongly carinate above, tip blunt and slightly deflexed; median carina not extending forward over metopidium; metopidium swollen in front, nearly flat on top.

Tegmina uniform ferruginous, nearly opaque, much wrinkled, very hairy at base and along veins.

Sides of thorax densely pubescent; undersurface of thorax and abdomen brown; legs entirely brown.

Length 3.7 mm.; width between humeral angles 2.5 mm.

Type: female (Baker's duplicate No. 8782).

Type locality: Singapore.

Described from two females, one from Singapore and one from the Island of Penang. Type in author's collection; paratype in Professor Baker's collection.

25. **Gargara nervosa**, sp. nov.

Apparently near *G. venosa* Walker from the Celebes (Walker. Journ. Linn. Soc. Zool. X: 189. 1868) and *G. caelata* Distant from the Nilgiri Hills (Distant, Fauna British India App. 172. 3389. 1916).

Uniform brown, punctate, pubescent; tegmina mottled brown and white with veins very large and prominent.

Head wider than long; dark brown, closely punctate, finely pubescent; base irregularly sinuate; face sculptured; eyes large, brown; ocelli inconspicuous, amber-colored, about equidistant from each other and from the eyes and situated a little above a line drawn through centers of eyes; clypeus a little longer than wide, extending for more than half its length below inferior margin of face, tip truncate, slightly pubescent.

Prothorax brown, darker on metopidium and posterior process, closely and finely punctate, sparingly and irregularly pubescent; humeral angles weak, blunt; metopidium very convex as seen from above; median carina not percurrent but appearing only on the posterior process; posterior process short, extending just to the internal angles of the tegmina, slightly depressed at base, carinate above, tip blunt, dark and slightly depressed.

Tegmina hyaline, wrinkled; base brown and punctate; transverse brown fascia just behind base and another just below internal angles; veins very large, strong and prominent; tips more or less pointed, extending just beyond apex of abdomen.

Sides of thorax white tomentose; undersurface of body brown; legs brown.

Length 4.7 mm.; width between humeral angles 2.4 mm.

Type: female (Baker's duplicate No. 8980).

Locality: Singapore.

Described from two females, both from Singapore. Type in author's collection; paratype in Professor Baker's collection.

26. **Gargara sordida**, sp. nov.

Dark, heavy-bodied; tegmina more or less blackened; posterior process extending just to internal angles of tegmina; sides of thorax more or less tomentose.

Head wider than long, black, sculptured, finely and closely punctate, sparingly pubescent with golden hairs; base irregularly sinuate; eyes very large, brown; ocelli small, white, glistening, farther from each other than from the eyes and situated far above a line drawn through centers of eyes, almost as high as tops of eyes; inferior margins of genae regularly sinuate; clypeus longer than wide, extending for nearly half its length below inferior margin of face, tip rounded, hairy.

Prothorax very dark brown, almost black, punctate, densely pubescent with golden hairs; humeral angles prominent, swollen, blunt; metopidium convex; posterior process short, heavy, blunt, extending just to internal angles of tegmina, carinate above, pubescent; median carina prominent on posterior process, very faint behind center of pronotum and not visible on metopidium.

Tegmina dark, translucent, wrinkled; base black and punctate; white tomentose patch of thorax showing through just behind base; dark brown fascia just beneath internal angles and dark brown patch behind apex of posterior process; veins strong and prominent.

Sides of thorax more or less white tomentose. Undersurface of body black. Legs brown.

Length 4.8 mm.; width between humeral angles 2.5 mm.

Type: female. Male considerable smaller and darker.

Locality: Singapore.

Described from two males and two females, all from Singapore. Type, allotype and one paratype in Professor Baker's collection; one paratype in author's collection.

27. **Periaman sp.**

One specimen from the Island of Penang which belongs to the genus *Periaman* and is apparently new. The specimen is, however, considerably mutilated and does not warrant being made the type of a new species.

Some Peculiar Papuan Customs.

By Miss L. S. Gibbs.

In 1913, in the course of Phytogeographical work at about 7 to 8,000 ft. in the Arfak Mountains, of Dutch N. W. New Guinea, my carriers, both men and women, were drawn chiefly from the Wariap and Stari, small "campongs" on the S. W. coast of Geelvink Bay.

While on the March these people collected the leaves of Laportea or Fleurya, sp., tying them neatly into bundles. As soon as climbing began they constantly rubbed these leaves on forearms and legs to the knees with great zest and evident enjoyment. On another occasion during the ascent, the grandson of the "Korano" or headman of Wariap, a most active and intelligent young fellow, stood stoically while the skin of his calves was sliced in spirals, deep enough to let blood flow freely from each cut. This operation was performed by the Malay, or rather Timorese, sergeant (in charge of the escort kindly provided by the Dutch authorities) who thoughtfully explained beforehand what was about to happen. Beyond the fact that it was a peculiarity of the "Papuas" to suffer in the head. I unfortunately did not gather the further drift of his remarks.

On the return journey, a young woman of Stari was brought up as "sakit prut" and given a good dose of Glauber's Salts. She appeared next morning to thank me for her recovery—her forearms and legs to the knees thickly smeared with fæces and accompanied by several companions similarly treated.

It would be interesting if readers of the "Asiatic Journal" could parallel similar instances amongst other native tribes, or possibly those ethnologically conversant with the customs of primitive peoples may be able to elucidate these examples.

Appendix I.

I have read with interest Miss Gibbs' note on "Some peculiar Papuan Customs" and amongst them I have noticed a Papuan Custom which corresponds with much similarity to a custom of the Arawaks and Macusi Indians of British Guiana.

During several surveying journeys in that Colony, I have noticed that when on long journeys especially if carrying heavy baggage, the natives have often rubbed themselves with a kind of nettle (KAMARI ?) in order they said to stimulate themselves, and give quicker action to the blood, and the same after a time gives them a most soothing effect, which enables them to carry on their work.

It is also done I understand for anyone suffering from backache, when the back is beaten with the nettle, until it sometimes bleeds.

W. R. HUMPHREYS, F.R.G.S.,
LIEUT. R. F. A.

APPENDIX II.

Giraldus Cambrensis states that the Roman nettle *Urtica pilulifera* was introduced into Great Britain by the Romans under Julius Caesar. The soldiers brought some seed of it and sowed it at Romney for their use to rub and chafe their limbs when through extreme cold they should be stiff and benumbed, being told before they came from home that the climate of Britain was so cold that it was not to be endured without some friction to warm their blood. I cannot get any confirmation of this from any of the Greek and Latin authors, but it seems to be a parallel to the accounts of Miss Gibbs and Lieut. Humphreys, as to the use of urtication for relieving chill and stiffness in the limbs.

H. N. RIDLEY.

Hoseanthus Merrill, n. gen.

By H. N. Ridley, F.R.S., C.M.G.

In Journal No. 76, p. 114, Mr. Merrill gives as a New Genus *Hoseanthus* for my genus *Hosea* (Verbenaceae) on the ground that Dennstedt had previously published a genus *Hosea.* This is quite unnecessary additional synonym. Dennstedt got hold of a copy of Rheede's Hortus Malabaricus a work in several volumes of rather poor drawings of South Indian plants, and published a Schluessel zum Hortus Indicus Malabaricus in 1818.

In cases where the drawing was so poor as to be not identifiable he gave it a new generic and specific name. but as no description whatever was published by him or even any suggestion as to the order of the plant these names rank as *nomina nuda* and are valueless. One of these plants was apparently a shrub which was so ill done that it is impossible to certainly identify it and to this sketch Dennstedt gave the name in his list of *Hosea.* Whatever the picture was intended to represent, it has doubtless long ere this received a properly accredited name and description, but I cannot find that any one has ever identified it and I do not know what it is meant for. Where the drawings in this work have been later identified Dennstedt's name has sometimes been retained, though as he did not ever describe one of them, the names were mere *nomina nuda* and might have been dropped. This being the case it is quite unnecessary to add to the ever increasing synonyms by substituting *Hoseanthus* for *Hosea* to retain the latter name for a plant which no one has ever identified and probably never will identify, and which the author Dennstedt never saw in his life nor I expect, would have recognized if he did see it. Dennstedt was evidently not so much a botanist as a compiler of lists; after publishing a Flora of Weimar in Germany he published about 4 compilations of lists of cultivated plants and the above mentioned Schluessel, and nothing else. One cannot protest too strongly against the unnecessary increase of synonyms for plants. Scientifically it has no value at all and only adds to confusion, and bulk of literature for no useful purpose.

The Bornean Species of Eugenia, Schefflera, and Saurauia, represented in the Singapore Herbarium.

By E. D. Merrill.

Bureau of Science, Manila, P. I.

Through the kindness of Mr. I. H. Burkill, Director of the Botanic Garden, Singapore, I was recently loaned the Bornean material of the genera *Eugenia, Schefflera*, and *Saurauia* in the herbarium of that institution for study. My original request for this material was prompted chiefly by the idea that through a study of it I would be able specifically to determine a number of specimens of these three genera in the herbarium of the Bureau of Science which were inadequate or incomplete. On receiving the material, however, I found that although most of it comes from Sarawak, from the same general regions whence I have received most of my own Bornean material, comparatively few of the specimens match unidentified material in the herbarium of the Bureau of Science, and a number of sheets represent species entirely different from any of the named species in the latter herbarium. This fact impresses me with the belief that as yet the extant Bornean botanical material represents a relatively small part of the species that actually occur in Borneo, and that intensive field work in botany will add several thousand species to the list of those already recorded from this relatively little known Island. The results of my study of the Singapore material of the three genera under discussion are given below.

Eugenia, Linnaeus.

An examination of the Bornean material representing this genus in the Singapore herbarium has induced me to propose and describe six new species, and to enumerate the specimens representing other species so far as I have been able to identify them. In addition to the twenty-seven species listed below at least eleven others are represented, but in most cases the material is scarcely sufficient to determine whether or not they represent described forms, and if described to which species they appertain. There are now about eighty-five species of the genus credited to Borneo; but the list will certainly be greatly extended. There are, in addition to the eleven Bornean species in the Singapore herbarium that I cannot specifically determine, twenty others represented in the herbarium of the Bureau of Science by collections which I have not as yet found expedient to determine except generically; more than one-half of the known Bornean species are represented by named specimens in the latter herbarium.

Eugenia kuchingensis, Merr. in J., S. B., R. A. S. **77** (1917) 213.

SARAWAK, *Haviland s.n.,* January, 1889, June, 1888; Rejang, *Haviland 2921,* August, 1893.

Eugenia javanica, Lam., Encycl. **3** (1789) 200.

SARAWAK, Matang, *Ridley 12264,* August, 1905.

Eugenia saligna, (Miq.) C. B. Rob. in Philip. Journ. Sci. **4** (1909) Bot. 392.

LABUAN, January, 1886, collector not indicated: Kuching, *Haviland 2931,* March 1, 1893, a form with relatively broad leaves.

Eugenia rufo-tomentosa, (Gibbs) Merr. in J., S. B., R. A. S. **77** (1917) 223.

SARAWAK, Kuching, *Haviland 1698,* September, 1892, *970,* the latter with rather larger leaves and longer flowers. Both of these specimens have larger leaves and shorter hairs than has Mrs. Clemens's Kinabalu material.

Jambosa conferta, Korth. in Nederl. Kruidk. Arch. **1** (1848) 202.

SARAWAK, Kuching, *Haviland s.n.,* March 27, 1893. The identification has been made from the rather imperfect description alone. The species as I have interpreted it can scarcely be distinguished from *Eugenia reticulata,* Wight.

Eugenia zeylanica, (Linn.) Wight, Ic. **1** (1840) 73.

SARAWAK, *Haviland 67;* British North Borneo, Sandakan, *Ridley 9050,* December, 1897.

Eugenia lineata, (Blume) Duthie in Hook. f., Fl. Brit. Ind. **2** (1876) 487.

SARAWAK, *Haviland 67, s.n.,* May 20, 1893, *2927,* and a specimen collected in August, 1884, collector not indicated.

Eugenia coralina, Merr. in J., S. B., R. A. S. **77** (1917) 207.

SARAWAK, near Kuching, *Haviland d, t, q, a,* November, 1892, two sheets, one in flower, the other in fruit.

Eugenia elliptilimba, Merr. in J., S. B., R. A. S. **77** (1917) 211.

SARAWAK, Kuching, *Haviland 1987,* December, 1892.

Eugenia densiflora, (Blume) DC., Prodr. **3** (1828) 287.

BORNEO, without definite locality but probably from Sarawak, *Ridley 12388,* on river banks.

Eugenia chlorantha, Duthie in Hook. f., Fl. Brit. Ind. **2** (1876) 487.

SARAWAK, Kuching, *Haviland 2924, 2926,* March, April, 1893, and three sheets without numbers.

Eugenia grandis, Wight, Ill. **2** (1841-50) 17.
SARAWAK, Rejang, *Haviland 2920,* June, 1893.

Eugenia ampullaria, Stapf in Trans. Linn. Soc. Bot. **4** (1894) 153, *t. 11, f. c. 13.*

BRITISH NORTH BORNEO, Mount Kinabalu, *Haviland 1096,* a cotype.

Eugenia besukiensis, (Hassk.) Merr. in J., S. B., R. A. S. **77** (1917) 226.

SARAWAK, near Kuching, *Haviland 2091,* January 11, 1893.

Eugenia operculata, Roxb., Fl. Ind. ed. 2, **2** (1832) 486.

SARAWAK, *Haviland,* 1893, the number illegible.

Eugenia myrtillus, Stapf in Trans. Linn. Soc. Bot. **4** (1894) 153.

BRITISH NORTH BORNEO, Mount Kinabalu, *Haviland 1109,* a cotype.

The form I credited to Mount Kinabalu as *Eugenia ugoensis,* C. B. Rob., in *J., S. B., R. A. S.* **77** (1917) 226, proves to be a fruiting specimen of Stapf's species. I can see no reason for distinguishing the two species and now believe that *E. ugoensis,* C. B. Rob. is identical with *E. myrtillus,* Stapf.

Eugenia baramensis, Merr. in J., S. B., R. A. S. **77** (1917) 218.

SARAWAK, Kuching, *Haviland 1884,* October, 1892.

Eugenia rugosa, (Korth.) Merr. in J., S. B., R. A. S. **77** (1917) 224.

SARAWAK, Braang, *Haviland 104,* December 27, 1888, on limestone.

Eugenia castanea, Merr. in J., S. B., R. A. S. **77** (1917) 212.

SARAWAK, Bergark, *Haviland 122,* January 8, 1889. The specimens differ from the type in having terete branchlets, while the bark is not at all flakey. These specimens much resembles Koorders's figure of *Eugenia ampliflora,* Koord. & Val.

Eugenia caudatilimba, Merr. in J., S. B., R. A. S. **77** (1917) 216.

SARAWAK, Kuching, *Haviland 2925,* April 13, 1893.

Eugenia alcinae, Merr. in Philip. Journ. Sci. **10** (1915) Bot. 216.

SARAWAK, Brooketon, *Haviland 518,* June 21, 1892; BRUNEI, *Haviland 67/38* without date.

Eugenia kingii, sp. nov. § *Jambosa.*

Species *E. plumbeae* affinis, differt foliis minoribus, nervis utrinque 5 vel 6.

A glabrous shrub, the branches terete, cinereous, the branchlets reddish-brown, rather slender, distinctly 4-angled, each internode thickened upward. Leaves opposite, chartaceous to subcoriaceous, lanceolate, 5 to 8 cm. long, 1.5 to 2.5 cm. wide, above brownish-olivaceous, smooth, shining, beneath paler, not punctate, narrowed upward to the rather slenderly acuminate apex and below to the obtuse to subacute base; lateral nerves 5 or 6 on each side of the midrib, prominent on the lower surface, somewhat ascending, anastomosing with the equally distinct marginal nerves about 2 mm. from the edge of the leaf, the reticulations distinct; petioles 2 to 3 mm. long. Cymes terminal, subsessile, 3- to 5-flowered, the rachis and very short branches 6 mm. long. or less. Flowers white, about 3 cm. in diameter, the calyx turbinate-infundibuliform, about 1.5 cm. long, narrowed below into a very short pseudostalk, the throat about 1.5 cm. in diameter; lobes reniform, coriaceous, 7 to 9 mm. wide. Styles slender, about 3.5 cm. long.

SARAWAK, Bongaya, *Ridley 9071,* December, 1897, "shrub, flowers white."

This specimen is mentioned by King[1] as being allied to *Eugenia plumbea,* King, from which it differs, however, in its smaller leaves, the lateral nerves being but one-half as many as in King's species.

Eugenia monantha, sp. nov. § *Jambosa.*

Arbor glabra, ramis teretibus, ramulis ultimis tenuibus, distincte 4-angulatis; *foliis* lanceolatis, epunctatis, chartaceis, usque ad 20 cm. longis, subolivaceis, nitidis, sursum gradatim angustatis, longe et tenuiter subcaudato-acuminatis, interdum leviter falcatis, basi angustatis, acutis vel subobtusis; nervis lateralibus utrinque 12—17, subtus perspicuis, prominulis, anastomosantibus; *floribus* terminalibus, solitariis, circiter 5 cm. diametro, pedicellatis; calycibus late infundibuliformibus, tubo circiter 2 cm. longo.

A glabrous tree the branches slender, terete, the ultimate internodes distinctly 4-angled, slender, 2 mm. in diameter or less. Leaves lanceolate, sometimes slightly falcate, chartaceous, subolivaceous, 12 to 20 cm. long, 2 to 4.5 cm. wide, gradually narrowed upward to the long and slenderly acuminate apex, the acumen often distinctly caudate and up to 2.5 cm. in length, and below to an acute or somewhat obtuse base; primary lateral nerves 12 to 17 on each side of the midrib, prominent on the lower surface, somewhat curved, anastomosing with the equally distinct marginal nerves 3 to 4 mm. from the edge of the leaf, the latter slightly arched between the anastomoses, the reticulations rather close, distinct under a lens; petioles 4 to 8 mm. long. Flowers terminal, solitary, rather large, in anthesis about 5 cm. in diameter, their pedicels 1 to 2 cm. long, distinctly jointed to the calyx. Calyx broadly funnel-shaped, the throat about 1.5 cm. in diameter, the lobes suborbicular-reniform, subcoriaceous, about 8 mm. in diameter, the tube rather abruptly narrowed below forming a short pseudostalk. Style slender, about 3.5 cm. long.

SARAWAK, Rejang, *Haviland 2146,* November, 1892.

This species is strongly characterized by its lanceolate, slenderly acuminate leaves which distinctly resemble those of *Eugenia jambos,* Linn.; its slender terete branches and distinctly 4-angled ultimate internodes of the branchlets; and the large, solitary, terminal, pedicelled flowers. It apparently belongs in the group of *Eugenia jambos,* Linn., but is not closely allied to that species.

Eugenia subracemosa, sp. nov. § *Jambosa.*

Arbor glabra, ramulis rugosis, distincte angulatis; *foliis* oppositis, coriaceis, in siccitate utrinque purpureo-brunneis, nitidis, coriaceis, oblongis vel oblongo-obovatis, utrinque subaequaliter angustatis, petiolatis, basi acutis vel acuminatis, apice acuminatis, usque ad 18 cm. longis, margine recurvatis, supra impresso-puncticulatis, nervis utrinque circiter 10, adscendentibus, perspicuis, juxta marginem anastomosantibus, reticulis obsoletis; *inflorescentiis* brevibus, subracemosis, paucifloris, fasciculatis, e tuberculis in ramis vetustioribus, usque ad 3 cm. longis; *floribus* brevissime pedicellatis; *calycis* tubo turbinato, circiter 3 mm. longo et 4 mm. diametro, deorsum angustato; *petalis* 4, liberis, circiter 4 mm. longis.

A glabrous tree, the branches and branchlets grayish to reddish-brown, rugose, the latter distinctly 4-angled, 3 to 3.5 mm. in diameter. Leaves opposite, coriaceous, when dry purplish-brown on both surfaces, shining, the upper surface smooth, minutely impressed-puncticulate, the lower epunctate, oblong to oblong-obovate, 14 to 18 cm. long, 6 to 7 cm. wide, subequally narrowed to the acute or somewhat acuminate base and to the acuminate apex, the margins recurved; lateral nerves about 10 on each side of the midrib, distinct but only slightly projecting on the lower surface, ascending, anastomosing directly with the equally distinct marginal nerves 2 to 3 mm. from the edge of the leaf, the latter slightly arched between the anastomoses, the reticulations obsolete; petioles thickened, nearly black, rugose, up to 1 cm. in length. Inflorescences up to 3 cm. in length, subracemose, simple, fascicled, each usually 5-flowered, on the older branches, at least always below the leaves, each rachis usually with two lateral and three terminal flowers, the pedicels very short, not exceeding 2 mm. in length. Flowers, including the stamens, 10 to 12 mm. in diameter and about 8 mm. long. Calyx turbinate, the tube narrowed below, about 3 mm. long, the throat about 4 mm. in diameter; lobes 4, ovate, rounded, 2 mm. long. Petals 4, free, about 4 mm. long, elliptic to elliptic-obovate. Stamens very numerous.

SARAWAK, Kuching, *Haviland 2928,* March 14, 1893.

In aspect this species somewhat resembles *Eugenia polycephala,* Miq., but is not closely allied to that species, differing radically in its vegetative characters and in its short, fascicled, few-flowered inflorescences.

Eugenia subsessilifolia, sp. nov. § *Jambosa.*

Arbor glabra, ramis ramulisque laevibus, teretibus, subcastaneis; *foliis* oppositis, coriaceis, oblongis, epunctatis, usque ad 13 cm. longis, apice perspicue sed obtuse acuminatis, basi late rotundatis, distincte cordatis, subamplexicaulibus, sessilibus vel subsessilibus, supra in siccitate obscure olivaceis, subtus rubro-brunneis; nervis primariis utrinque circiter 12, subtus distinctis, anastomosantibus; *inflorescentiis* cymosis, axillaribus terminalibusque, brevibus, circiter 2.5 cm. longis, axillaribus paucifloris, terminalibus densifloris; *floribus* circiter 1.8 cm. longis, 4-meris; *calycis* tubo deorsum gradatim angustato.

A glabrous tree, the branches and branchlets smooth, subcastaneous, somewhat shining, terete, the nodes somewhat thickened. Leaves oblong, coriaceous, not punctate, the upper surface dark-olivaceous somewhat shining, the lower reddish-brown when dry, sessile or subsessile, 10 to 13 cm. long, 4 to 5 cm. wide, apex rather prominently but bluntly acuminate, base broadly rounded and distinctly cordate, subamplexicaul; midrib impressed on the upper surface, prominent beneath; lateral nerves about 12 on each side of the midrib, somewhat curved, slender, distinct, slightly projecting on the lower surface, anastomosing with the subequally distinct and slightly arched marginal nerves about 5 mm. from the edge of the leaf. Inflorescences short, cymose, axillary and terminal, the rachis of the lateral inflorescences solitary, less than 1 cm. long, usually 2- or 3-flowered, the terminal inflorescences about 2.5 cm. long, including the flowers, dense, the whole inflorescence about 4 cm. in diameter, the branches about 1 cm. long, each usually 3-flowered. Flowers about 1.8 cm. long and nearly as wide in anthesis, when dry dark-brown. Calyx-tube at least 1 cm. long, gradually narrowed below forming a pseudostalk, sessile, in bud clavate. Sepals orbicular-reniform, about 4 mm. wide. Petals ovate, about 5 mm. long. Filaments numerous, up to 8 mm. in length.

SARAWAK, near Kuching, *Haviland 2923,* February 6, 1893 "petals and sepals caducous."

The alliance of this species is apparently with the Javan *Eugenia hypericifolia,* (Blume) Koord. & Val., from which it is distinguished not only by the shape and apparently less distinct venation of its leaves, but also by its many-flowered inflorescences and clavate eglandular buds.

Eugenia lunduensis, sp. nov. § *Jambosa.*

Arbor glabra, ramis ramulisque teretibus vel ramulis leviter compressis vel sulcatis; *foliis* sessilibus vel brevissime petiolatis, chartaceis, oblongo-ellipticis, usque ad 20 cm. longis, acuminatis, basi rotundatis, leviter cordatis, epunctatis, supra olivaceo-brunneis, laevibus, nitidis, subtus pallidis; nervis utrinque circiter 15, subtus valde prominulis, leviter curvatis, cum nervis marginalibus valde distinctis anastomosantibus; inflorescentiis terminalibus, brevissimis, depauperato-cymosis, paucifloris; *floribus* confertis; *calyce* circiter 1 cm. longo, deorsum angustato, lobis patulis; *petalis* suborbicularibus, liberis.

A glabrous tree, the branches and branchlets terete, smooth, pale-brownish, or the ultimate branchlets somewhat compressed or sulcate, never angled, about 3 mm. in diameter. Leaves opposite, chartaceous, oblong-elliptic, sessile or subsessile, 18 to 20 cm. long, 7 to 9 cm. wide, epunctate, subequally narrowed upward to the acuminate apex and below to the rounded and somewhat cordate base, the upper surface olivaceous-brownish, smooth, somewhat shining, the nerves usually slightly impressed, the lower surface pale, shining; lateral nerves about 15 on each side of the midrib, very prominent, slightly curved, anastomosing with the equally distinct, nearly straight or slightly arcuate marginal nerves about 5 mm. from the edge of the leaf. Cymes depauperate, terminal, the axis and very short branches 5 mm. long or less, the base with several pairs of lanceolate, acuminate, stiff, 5 mm. long bracts, the bracteoles subtending the flowers oblong-ovate, 1.5 mm. long; the pedicels about 2 mm. long. Calyx-tube about 1 cm. long, the limb somewhat spreading, and 8 to 9 mm. in diameter, excluding the lobes, narrowed below, somewhat funnel-shaped; lobes ovate, rounded, sparsely punctate, 4 to 5 mm. long. Petals 4, free, orbicular, about 6 mm. long. Filaments about 6 mm. long (from unopened buds). Styles about 1.5 cm. long.

SARAWAK, Lundu, Mount Gadug, *Haviland 985*, 1892.

The alliance of this species is manifestly with *Eugenia pseudo-formosa*, King, from which it differs chiefly in its somewhat smaller, fewer-nerved leaves and in its distinctly smaller flowers. Another allied species is *Eugenia sexangulata*, (Miq.) Koord. & Val., which differs from the present species, among other characters in its angular branchlets.

Eugenia rhynchophylla, sp. nov. § *Sysygium*.

Arbor glabra, ramis ramulisque tenuibus, teretibus, pallidis; *foliis* chartaceis vel subcoriaceis, oblongis vel oblongo-ellipticis, usque ad 10 cm. longis, perspicue subcaudato-vel rostrato-acuminatis, basi acutis vel leviter acuminatis, in siccitate olivaceis vel brunneo-olivaceis, nitidis, supra minute impresso-puncticulatis, subtus sub lente perspicue punctatis, nervis primariis utrinque circiter 10, irregularibus, distantibus, patulis, leviter curvatis, anastomosantibus, reticulis obsoletis vel subobsoletis; *inflorescentiis* depauperato-cymosis, paucifloris, solitariis vel fasciculatis, axillaribus et terminalibus, usque ad 5 mm. longis; *floribus* obovoideis, circiter 3 mm. longis, sessilibus vel subsessilibus; *petalis* connatis, calyptratim deciduis.

A glabrous tree with slender, terete, pale, smooth branches and branchlets 1.5 to 2 mm. in diameter. Leaves opposite, chartaceous or subcoriaceous, brittle, olivaceous to brownish-olivaceous on both surfaces and somewhat shining when dry, oblong to oblong-elliptic, 8 to 10 cm. long, 3 to 4 cm. wide, the apex conspicuously subcaudate- or rostrate-acuminate, the acumen blunt, about 1 cm. long, the base acute to somewhat acuminate, the upper surface minutely impressed-puncticulate, the lower distinctly punctate under a lens; lateral nerves about 10 on each side of the midrib, spreading, slightly curved, prominent and projecting on the lower surface, usually impressed on the upper surface, distant, rather irregular, anastomosing with the equally distinct marginal nerves 2 to 4 mm. from the edge of the leaf, the lateral nerves somewhat arched between the anastomoses, the reticulations obsolete or subobsolete: petioles 5 to 8 mm. long. Cymes depauperate, few-flowered, axillary and terminal, solitary or few in a fascicle, 5 mm. long or less, the rachis short, usually with two short lateral branchlets, each bearing one flower. Flowers obovoid, about 3 mm. long, sessile or subsessile, the limb very slightly produced, truncate. Petals wholly united into a deciduous calyptra about 1.5 mm. in diameter. Stamens numerous, their filaments very short.

SARAWAK, Kuching, *Haviland 2930,* May 19, 1893.

This species is especially well characterized by its slender, terete, pale branches and branchlets, the internodes 3 to 9 cm. in length, and its very short, few-flowered, depauperate, axillary and terminal cymes, which do not exceed the petioles in length. It differs radically from *Eugenia baramensis*, Merr., another Bornean species that has very short, few-flowered cymes not only in its vegetative characters but also in its pale, terete, not 4-angled branches and branchlets.

Schefflera, Forster.

Six species of this genus were definitely known from Borneo, and an examination of the material in the Singapore herbarium has enabled me to increase the list to ten. Of the previously described species I was able to match but two in the Singapore herbarium, these being *Schefflera tetrandra*, Merr., represented by *Ridley 12251* from Matang, and *Haviland s.n.* from Kuching, and *S. borneensis*, Merr., represented by a Kuching specimen probably collected by *Haviland.* There are four additional species in the Singapore herbarium, and five in the Bureau of Science herbarium, making a total of nineteen Bornean species; however, as the material representing these additional nine species is decidedly inadequate in each case, I do not consider it advisable to attempt to carry the classification beyond the genus at the present time.

Schefflera borneensis, sp. nov.

Arbor parva, inflorescentiis perspicue brunneo-furfuraceis; *foliis* longe petiolatis, 8- vel 10-foliolatis, foliolis oblongis, integris, coriaceis, usque ad 26 cm. longis, breviter acuminatis, basi obtusis vel acutis, nervis turinque circiter 12, utrinque cum reticulis distinctis; inflorescentiis ut videtur terminalibus, ramis primariis numerosis, confertis, racemose dispositis, usque ad 20 cm. longis; *umbellis* numerosis, tenuiter pedunculatis, 15—20-floris; *floribus* parvis, 5-meris; *petalis* extus parcissime et minutissime furfuraceis, ovatis, circiter 2 mm. longis; *fructibus* circiter 4 mm. longis, subellipsoideis, acute 5-angulatis, sulcatis.

A small tree, glabrous except the conspicuously brown-furfuraceous inflorescences. Branches apparently thickened.

Leaves palmately 8- to 10-foliolate, their petioles up to 43 cm. long; leaflets coriaceous, pale or pale-brownish when dry, somewhat shining, oblong, 18 to 26 cm. long, 6 to 8 cm. wide, apex shortly acuminate, base obtuse to acute; primary lateral nerves about 12 on each side of the midrib, rather distinct although but slightly projecting on both surfaces as are the rather close reticulations, curved, anastomosing; petiolules 3.5 to 8 cm. long, somewhat thickened at their apices. Inflorescence apparently terminal, consisting of numerous, elongated, racemosely arranged, crowded primary branches about 40 cm. in length, each subtended by a coriaceous, lanceolate to ovate-lanceolate, acuminate, 3 cm. long, furfuraceous bract. Umbels numerous, 15- to 20-flowered, their peduncles slender, in anthesis 1.5 to 2 cm. long, each subtended by an oblong, about 5 mm. long, deciduous, bract, the pedicels up to 4 mm. in length, all parts brown-furfuraceous. Flowers 5-merous; the calyx funnel-shaped, about 1.8 mm. in diameter, 5-toothed, the teeth lanceolate-acuminate from a broad base, about 0.5 mm. long. Petals ovate, 2 mm. long, externally minutely and sparingly furfuraceous. Fruits ellipsoid, about 4 mm. long, prominently and sharply 5-angled, 5-sulcate.

SARAWAK, Kuching, *Haviland 2948* (type), January 25, 1893, "small tree, flowers yellow; *Native collector 1060 Bur. Sci.*

This species is strongly characterized by its numerous, coriaceous, entire leaflets, the petioles being unusually long, and its numerous, crowded, greatly elongated primary branches of the inflorescences which are conspicuously brown-furfuraceous throughout and about 40 cm. in length. Haviland's specimen presents ten of these primary branches, manifestly but a part of those from a single inflorescence.

Schefflera burkillii, sp. nov.

Frutex glaber; *foliis* 5—3-foliolatis, foliolis coriaceis, olivaceis, oblongis ad oblongo-ellipticis, integris, usque ad 10 cm. longis, acutis vel leviter acuminatis, basi acutis, nervis utrinque circiter 10, tenuibus, reticulis distinctis; *inflorescentiis* terminalibus, brevissime pedunculatis, circiter 5 cm. longis, ramis primariis usque ad 4, subumbellatim dispositis; *umbellis* in ramis singulis usque ad 7, pedunculatis, 10—15-floris; *floribus* pedicellatis, 6-meris, petalis circiter 2.8 mm. longis.

A glabrous shrub, the branches rugose when dry, about 5 mm. in diameter, dark-colored. Leaves 5- to 3-foliolate, their petioles about 4 cm. long, inflated at the base, the narrow margins of the inflated part somewhat recurved, not appressed to the branches. Leaflets coriaceous, olivaceous when dry, oblong to oblong-elliptic, 8 to 10 cm. long, 3.5 to 4 cm. wide, entire, base acute, apex acute to somewhat acuminate, margins entire; lateral nerves about 10 on each side of the midrib, slender, nearly straight, anastomosing, the reticulations rather close and distinct; petiolules 1 to 1.5 cm. long. Inflorescences very shortly peduncled, terminal, about 5 cm. long, the primary branches up to 4, subumbellately disposed near the apex of the peduncle, each bearing up to 7 umbels, in some the umbels mostly near the tips of the branchlets, in others racemosely disposed. Umbels 10- to 15-flowered, their peduncles 8 to 12 mm. long. Flowers 6-merous, their pedicels 2 to 4 mm. long. Calyx somewhat funnel-shaped, truncate, 2.4 mm. in diameter. Petals oblong, acute, about 2.8 mm. long. Anthers 6.

SARAWAK, Matang road, *Native collector 802 Bur. Sci.* (type), August 11, 1911; Matang, June 14, 1893, from the Sarawak Museum, apparently collected by *Haviland*.

Among the Bornean species this is apparently most closely allied to *Schefflera polita,* (Miq.) Viguier, but differs in numerous characters, notably in its entirely different stipules, which in this species are reduced to a recurved narrow rim distant from the branchlet.

Schefflera havilandii, sp. nov.

Frutex vel arbor parva, glabra; *foliis* longissime petiolatis, foliolis 7—9, oblongis, coriaceis, in siccitate brunneo-olivaceis, nitidis, laevibus, usque ad 18 cm. longis, integris, abrupte et breviter acuminatis, basi acutis vel rotundatis, nervis utrinque circiter 7, tenuibus, curvatis vel adscendentibus, saepe indistinctis, reticulis obsoletis; *inflorescentiis* ut videtur terminalibus, ramis primariis (numerosis?) valde elongatis, usque ad 45 cm. longis; *umbellis* numerosis, in ramis primariis racemose dispositis, pedunculatis, circiter 8-floris; *fructibus* junioribus obovoideis, truncatis, circiter 3 mm. longis, deorsum angustatis, basi acutis, irregulariter rugosis, 6-locellatis.

A shrub or a small tree, glabrous. Leaves palmately 7- to 9-foliolate, their petioles at least 30 cm. long; leaflets coriaceous, oblong, entire, brownish-olivaceous, shining, smooth, the apex rather abruptly and shortly acuminate, base acute to rounded, 16 to 18 cm. long, 5 to 7 cm. wide; primary nerves about 7 on each side of the midrib, slender, often indistinct, ascending or curved, the reticulations obsolete; petiolules 3 to 6 cm. long. Inflorescences apparently terminal and composed of several (many?) greatly elongated primary branches, these up to 45 cm. in length, the lower parts naked, the upper two-thirds to three-fourths of each with numerous, racemosely disposed, about 8-flowered umbels, their peduncles 1 to 1.5 cm. in length. Pedicels about 5 mm. long. Young fruits obovoid, truncate, narrowed below to the acute base, irregularly rugose, about 3 mm. long, 6-celled.

SARAWAK, near Kuching, *Haviland's collector 192,* November 23, 1892; *Haviland 2947,* March 22, 1893.

At first glance this species resembles *Schefflera borneensis,* Merr., but is readily distinguished by its smooth leaflets in which the reticulations are obsolete, and its glabrous inflorescences. It probably has the same type of inflorescence as the latter, but the specimens available do not show its true characters, the primary branches being detached.

Schefflera racemosa, sp. nov.

Frutex, inflorescentiis floribusque cinereo-puberulis; *foliis* longissime petiolatis, 6-foliolatis, foliolis in siccitate pallidis, subcoriaceis, oblongis, usque ad 25 cm. longis, acuminatis, basi obtusis, margine perspicue distanter serratis vel subintegris, nervis utrinque circiter 6, subtus valde prominulis, curvatis, arcuato-anastomosantibus, reticulis laxissimis; *inflorescentiis* breviter pedunculatis, ramis circiter 3, circiter 25 cm. longis; *floribus* in fasciculis distantibus dispositis, breviter pedicellatis, plerumque 8-meris; *petalis* oblongo-ovatis, circiter 3 mm. longis, extus puberulis.

A shrub, glabrous except the cinereous-puberulent inflorescences and flowers, the branches up to 1 cm. in diameter. Leaves 6-foliolatis, their petioles 35 to 40 cm. in length, the petiolules 2 to 8 cm. long, the exterior ones shorter than the central ones: leaflets pale when dry, subcoriaceous, oblong, 18 to 25 cm. long, 5 to 10 cm. wide, narrowed below to the obtuse base and above to the rather slenderly acuminate apex, the margins distantly and rather prominently serrate to subentire; lateral nerves about 6 on each side of the midrib, distant, lax, curved, arcuate-anastomosing, very prominent on the lower surface, the reticulations very lax. Inflorescences apparently in the uppermost axils, usually 3-branched, shortly peduncled, the peduncles 3 cm. long or less, the branches usually about 25 cm. long. Flowers in distant fascicles on the primary branches, usually six or less in a fascicle, each fascicle subtended by an ovate-lanceolate, acuminate, puberulent, deciduous bract 5 mm. long or less; the pedicels puberulent, 2 mm. long or less. Calyx funnel-shaped, truncate or obscurely denticulate, about 3 mm. in diameter and 2 mm. long, puberulent. Petals 7 to 9, usually 8, oblong-ovate, acute, about 3 mm. long, externally puberulent. Stamens as many as the petals. Fruits unknown.

SARAWAK, Bau, *Ridley 11775* (type), July, 1893, *Anderson 49,* August, 1912; Bra'ang, *Haviland 35,* November, 1888; Mount Sudan, *Native collector 2042 Bur. Sci.*

This species is well characterized by its long-petioled leaves, prominently nerved leaflets, and by its characteristic inflorescences, the primary branches usually three in number, cinereous-puberulent, and the shortly pedicelled, usually 8-merous flowers being arranged in distant, few-flowered fascicles, not in umbels.

Saurauia, Willdenow.

Saurauia planchonii, Hook. f. in Trans. Linn. Soc. **23** (1860) 161.

SARAWAK, near Tegora, *Haviland 2048* and a sheet without number indicated as "= *2048*"; Kuching, *Haviland,* indicated as "= *764*" (inflorescences immature); Matang, *Ridley;* Bau, *Ridley 11785,* "epiphyte, flowers red"; Tambusan, *Ridley.*

A characteristic endemic species.

Saurauia heterosepala, Merr. in Philip. Journ. Sci. **13** (1918) Bot.

SARAWAK, near Kuching, *Haviland 27* and *s.n.,* March, 1893. The specimens differ in a few minor details from the type but I think represent this species.

Saurauia oblancifolia, Merr. nom. nov.

Saurauia oblanceolata, Merr. in Philip. Journ. Sci. **13** (1918) Bot. 92, non Ridley, 1916.

SARAWAK, Bongaya, *Ridley 9076,* December, 1897, "shrub, flowers white, said to be irritating." The specimen agrees closely with the type.

Saurauia ferox, Korth., Verh. Nat. Gesch. Bot. (1839-42) 132, *t. 30.*

SARAWAK, *Haviland s.n.* Apparently typical of this endemic species.

Saurauia amoena, Stapf in Trans. Linn. Soc. Bot. **4** (1894) 134.

BRITISH NORTH BORNEO, Mount Kinabalu, *Haviland 1361,* a cotype of this endemic species.

In addition to the above and those described below, there is in the herbarium also a species indicated under an as yet unpublished name proposed by Stapf, represented by four specimens, and an apparently undescribed species represented by a rather inadequate specimen from Gaya, collector not indicated but probably Ridley.

Saurauia glabra, sp. nov.

Frutex glaber; *foliis* coriaceis, in siccitate olivaceis, nitidis, subtus brunneis vel castaneis, plerumque oblongis, usque ad 18 cm. longis, breviter acuminatis, basi acutis, margine crenulatis, nervis utrinque 8—10, distinctis; *floribus* e ramis defoliatis, solitariis vel binis, glabris, longe pedicellatis; *sepalis* valde inaequalibus, exterioribus ellipticis, circiter 6 mm. longis, interioribus latissime ovatis vel suborbicularibus, circiter 8 mm. longis; *ovario* glabro; stylis 3, circiter 9 mm. longis, basi leviter connatis.

A shrub, glabrous throughout, or the very youngest parts slightly furfuraceous, soon becoming entirely glabrous. Leaves mostly oblong, coriaceous, 10 to 18 cm. long, 4 to 7 cm. wide, usually olivaceous when dry, the lower surfaces brownish to castaneous, shining, the apex shortly and rather obtusely acuminate, base acute, margins crenulate; lateral nerves 8 to 10 on each side of the midrib, prominent; petioles 2 to 3 cm. long. Flowers on the branches below the leaves, solitary or in pairs, their pedicels ultimately 3 cm. in length (in young fruit) in bud shorter, each with one or two ovate, obtuse bracts in the lower part 1 mm. long or less. Sepals glabrous, unequal, the outer two elliptic, about 6 mm. long and 3.3 mm. wide, the inner three broadly ovate to suborbicular, about 8 mm. long. Corolla about 12 mm. long, the lobes 9 by 6 mm., the apex truncate-rounded and retuse. Stamens about 30. Ovary glabrous; styles 3, glabrous, about 9 mm. long, united for the lower 1 to 2 mm.

SARAWAK, Matang, *Haviland s.n.*, August, 1888 (type), Penkuku, *Haviland s.n.;* near Kuching, *Haviland 1004,* January 19, 1892 (with some of the leaves obovate), *Native collector 256, 555, 2495 Bur. Sci.*

This species greatly resembles *Saurauia nudiflora,* DC., of the Malay Peninsula, Sumatra, and Java, but is at once distinguished from it by its 3, not 5 styles; it differs also in various other characters.

Saurauia spinuloso-setosa, sp. nov.

Frutex vel arbor parva, ramis et foliis utrinque et inflorescentiis perspicue curvato-spinuloso-setosis, setis plerumque subpatulis, ferrugineis vel subferrugineis; *foliis* chartaceis, ellipticis vel ovato-ellipticis, usque ad 17 cm. longis, in siccitate supra castaneis, subtus pallidioribus, apice tenuiter caudato-acuminatis, basi saepe leviter inaequilateralibus, obtusis vel rotundatis, margine perspicue spinulosis, nervis utrinque circiter 15, perspicuis; *cymis* axillaribus, solitariis vel fasciculatis, subsessilibus vel breviter pedunculatis, paucifloris; *bracteis* linearibus, 4 ad 6 mm. longis, setosis; *sepalis* setosis, oblongo-ovatis, acutis, circiter 5.5 mm. longis; *antheris* circiter 30; *ovario* glabro, stylis 3, liberis, glabris, 3 mm. longis.

A shrub or small tree, all parts prominently spinulose-setose with brownish to ferrugineous, usually spreading, curved setae 2 to 5 mm. in length. Leaves chartaceous, elliptic to ovate-elliptic, 11 to 17 cm. long, 5.5 to 8 cm. wide, the apex slenderly caudate-acuminate, the acumen usually about 2 cm. in length, the base often somewhat inequilateral, obtuse to rounded, the margins prominently spinulose-setose, the upper surface castaneous, with numerous, scattered, curved, rather short setae, the lower surface pale-brownish, densely setose on the midrib and nerves, with fewer and smaller setae on the reticulations; lateral nerves about 15 on each side of the midrib, prominent, curved; petioles 1 to 2 cm. long, densely setose. Cymes axillary, solitary or fascicled, few-flowered, 2 cm. long or less, all parts prominently setose, the peduncles 8 mm. long or less, the pedicels slender, 6 to 10 mm. long; bracts linear, 4 to 6 mm. long, densely setose. Sepals about 5.5 mm. long, setose, oblong-ovate, acute. Corolla-lobes oblong, about 6 mm. long, 2.5 mm. wide, apex truncate-rounded, not or but obscurely retuse. Stamens about 30. Ovary glabrous; styles 3, free, glabrous, 3 mm. long.

SARAWAK, Kalaka, April 17, 1895, collector not indicated, but probably *Haviland.*

This species is prominently characterized by its numerous, slender, usually spreading, curved setae which are present on all the vegetative parts; its slenderly caudate-acuminate, prominently spinulose leaves which are castaneous above when dry and pale-brown beneath; and its few-flowered, axillary cymes. It is probably as closely allied to *Saurauia acuminata,* Merr., as to any other described form but is radically different from that species.

Saurauia ridleyi, sp. nov.

Frutex vel arbor parva, ramis teretibus, glabris, ramulis junioribus densissime longe subadpresse setosis; *foliis* chartaceis, oblongis, oblongo-obovatis, vel oblongo-oblanceolatis, plerumque utrinque subaequaliter angustatis, apice tenuiter acuminatis, basi acutis vel obtusis, usque ad 37 cm. longis, margine spinulosis, supra glabris, subtus ad costam nervosque spinulosis, nervis utrinque 15 ad 20, perspicuis; *floribus* fasciculatis, axillaribus vel e ramis vetustioribus, pedicellis ciliato-hirsutis; *sepalis* extus parce hirsutis, circiter 4 mm. longis; *petalis* oblongis, obtusis; *ovario* glabro; *stylis* 3, tomentosis, circiter 3 mm. longis, in ⅓ inferiore parte connatis.

A shrub or a small tree, the tips of the branchlets and the younger petioles densely subappressed-setose with slender, brownish to fulvous setae up to 5 mm. in length, the branches terete, glabrous. Leaves chartaceous, oblong, oblong-obovate, or broadly oblong-oblanceolate, for the most part subequally narrowed to base and apex, 15 to 37 cm. long, 7 to 11 cm. wide, the apex slenderly acuminate, the base acute to somewhat obtuse, the upper surface entirely glabrous, pale-olivaceous, shining, the lower rather prominently curved-setose on the midrib and lateral nerves and otherwise somewhat hirsute, the margins spinulose, the slender teeth appressed or incurved; lateral nerves 15 to 20 on each side of the midrib, prominent, curved, the reticulations distinct, subparallel; petioles 1.5 to 4 cm. long, when young rather densely curved-setose like the branchlets, in age glabrous or nearly so. Flowers fascicled, axillary and on the older branches below the leaves, few to as many as 15 in a fascicle, the slender pedicels up to 12 mm. in length, ferruginous-hirsute. Sepals elliptic-oblong to ovate, acute, about 4 mm. long, externally slightly hirsute. Corolla-lobes oblong, obtuse or rounded, equilateral, about 4 mm. long and 2 mm. wide. Stamens about 20, the anthers 2.5 to 3 mm. long. Ovary glabrous. Styles 3, tomentose, about 3 mm. long, united for the lower 1 mm.

SARAWAK, Lundu, *Ridley 12459* (type), September, (1894 ?) Matang, *Hullett, s.n*, *Ridley 12269,* August, 1893.

This species is well characterized by its rather densely incurved-setose branchlets and petioles, the midrib and lateral nerves on the lower surface of the leaves with similar setae, and its fascicled, slenderly pedicelled flowers with glabrous ovaries and tomentose styles.

Saurauia havilandii, sp. nov.

Frutex vel arbor parva, partibus junioribus inflorescentiisque exceptis glaber vel subglaber; ramis teretibus, glabris, ramulis parce adpresse squamosis; *foliis* chartaceis, oblongis vel oblongo-ovatis, usque ad 25 cm. longis, tenuiter acute acuminatis, basi acutis, margine breviter subadpresse serratis, supra glabris, subtus pallidis, glabris, vel ad costa parcissime adpresse squamosis, nervis utrinque 15—18, perspicuis; petiolo 3 ad 4 cm. longo; *paniculis* terminalibus vel ex axillis superioribus, pedunculatis, solitariis, pedunculatis, multifloris, usque ad 20 cm. longis, dense adpresse squamoso-setosis, squamis vel setis brevibus; *floribus* parvis; *sepalis* 2.5 ad 3 mm. longis, exterioribus extus adpresse setosis; *antheris* 10; *ovario* glabro; *stylis* 3, distincte tomentosis, ad basi leviter connatis, 2 mm. longis.

A shrub or small tree, glabrous or nearly so except the very young parts and the inflorescences. Branches terete, dark reddish-brown, glabrous, the branchlets with few, closely appressed, short, thick scales. Leaves chartaceous, oblong to oblong-ovate, 14 to 25 cm. long, 6 to 10 cm. wide, narrowed upward to the slenderly and acutely acuminate apex, the acumen sometimes subcaudate and up to 2.5 cm. long, the base acute to subobtuse or broadened as to be almost rounded, the margins with small, closely appressed, short, thickened, sharp teeth, the upper surface blackish when dry, glabrous, the lower pale, glabrous, or the midrib with very few appressed scales; lateral nerves 15 to 18 on each side of the midrib, prominent, curved, anastomosing, the reticulations subparallel, distinct; petioles 3 to 4 cm. long, glabrous or nearly so. Panicles solitary, terminal or in the uppermost axils, peduncled, up to 20 cm. long, many-flowered, the peduncles 4 to 6 cm. long, with few, appressed scales, the lower branches up to 7 cm. in length, these with the branchlets and the rachis rather densely appressed setose-scaly, the setae or scales brownish, short. Flowers numerous, small, their pedicels 2 to 3 mm. long, the bracts linear-lanceolate, 2 mm. long or less, appressed-setose. Sepals thin, elliptic-ovate, acute to obtuse, externally sparingly appressed-setose, 2.5 to 3 mm. long. Corolla-lobes elliptic, rounded, 3.5 to 4 mm. long, not retuse. Anthers 10, about 2 mm. long. Ovary globose, glabrous; styles 3, distinctly tomentose, about 2 mm. long, slightly united below.

SARAWAK, Braang, *Haviland s.n.,* November, 1888.

In general appearance this species resembles *Saurauia planchonii,* Hook. f., and is manifestly allied to it. It can be readily distinguished by its leaves being entirely glabrous beneath or at most with but few, closely appressed scales on the midrib.

The Circumstances attending the Murder in 1859, of the Botanist James Motley.

BY I. H. BURKILL.

In Britten and Boulger's useful *Biographical Index of British and Irish Botanists* (London, 1893) the following is the entry regarding James Motley, its abbreviations expanded for clearness:—

> MOTLEY, JAMES, (fl. 1847-55). Murdered in Borneo by Mohammedan settlers. Of Aberafon, Glamorganshire, and afterwards of Labuan. Contrib.[utor] to Phyt.[ologist] ii. (1847) and Journ.[al of] Bot.[any], 1847 and [of] Carmarthen plants to Top.[ographical] Bot.[any], (551). Collected in Malaya, 1852-55. [Published] "Contrib.[utions] to [the] Nat.[ural] Hist.[ory] of Labuan" (with L. L. Dillwyn), 1855. Plants [collected by him are] at Kew. [Vide] Linn.[ean Society's] Trans.[actions], xxiii, 157; R.[oyal] S.[ociety's] C.[atalogue], iv, 495. [Commemorated in] BARCLAYA MOTLEYI, Hook. f.

The statement that he was murdered by Mohammedan settlers is derived from the *Transactions of the Linnean Society,* loc. cit., where Sir Joseph Hooker in dedicating to him the jungle water-lily, *Barclaya Motleyi,* states that the examination of it was almost the last botanical work that he did. The implication that the murder was done in 1855 arises from want of evidence as to the date. But the events which led up to his death are recorded in the Singapore Free Press for 1859; and as apparently there appears to be only one file of the paper existing, it seems desirable to recall them. The word "settlers" disappears from the story.

James Motley was a Civil Engineer, who about 1852 went to Labuan in connection with coal-mining there, and became later the Superintendent of the coal-mining operations of a private company upon a concession in the territory of the Sultan of Banjermassin. This concession was along the Sungei Banyu Irang at two or three days journey to the south of Banjermassin town. There he was in 1859. In the very commencement of that year sinister whispers of sedition brewing in Banjermassin reached the Dutch Government in Batavia; but so badly was the Government served by their Resident at the Sultan's court that they were told in answer to their immediate enquiries that it was nothing. It was in fact a court-intrigue to replace the ruler by his brother, and, in doing so, to overthrow Dutch authority by which the reigning

Sultan was maintained. The plotters played upon religious fanaticism, producing for their purpose a man who claimed to have come from heaven, and instigated the Dyaks to rise. They rose on April 28th,§ and attacked the mines at Pengaron which is on the east of Banjermassin, about as remote from it as the Sungei Banyu Irang is to the south. Though they were beaten off, they succeeded in arresting the messenger sent to Banjermassin to report, and killed him.

Three days later § they attacked Motley's mines, killing Motley at a place called Bangkal,† and Motley's wife and three children at a place called Kalangan;† where also they murdered the rest of the company's staff, their wives and children, all except a few infants. They murdered also about the same date in the same region a Dutch political officer and several missionaries. They all but got possession of the country, so that the fighting extended to Banjermassin itself, and it was not for two years that there was quiet again.

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§ Singapore Free Press of 2nd. June, 1859.
† Singapore Free Press of 30th. June, 1859.

Notes on Dipterocarps.

No. 3. The seedling of *Shorea robusta,* Roxb., and the conditions under which it grows into pure forests.

By I. H. Burkill.

In this *Journal,* 1917, pp. 163—167, outline figures of the seedlings of some Malayan Shoreas were given; and the remark was made that the Indian *Shorea robusta,* well known as *Sal,* differs from them in the elongation of the stalks of its cotyledons. It is now possible to illustrate the remark by an outline figure of the seedling of *Shorea robusta* at the same stage as the Malayan species: and if the reader, after glancing at it, will turn back to the pages named, he will see at once how wide is this difference.

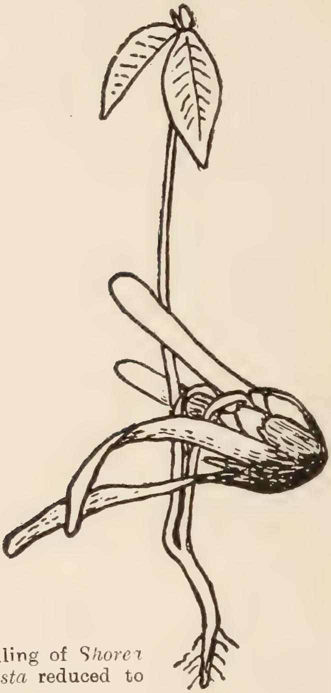
In my material of *S. robusta* the stalks of the cotyledons attained 6 cm. in length; whereas those of the Malayan species figured before never exceeded 1 cm.

I owe the material to the kindness of Mr. R. S. Hole of the Indian Forest Service, Botanist at the Imperial Forest Research Institute, Dehra Dun.

Shorea robusta is one of the most important of Indian Forest trees: for instance, Pearson estimated in 1913 that the annual production exceeded eight million cubic feet (Economic Value of Shorea robusta, *Indian Forest Memoirs,* ii. part 3, 1913, p. 70); and while the Government conserves large forests of it, there are also considerable areas privately owned and worked. The distribution of the Government forests may be gathered easily from Caccia's paper entitled "Development of Sal" in the *Indian Forest Records,* vol. 1, part 2, 1908, p. 85, to which a map is appended. The privately owned forests lie in the same regions, which may be summarised thus:—

(i) a belt, extending along the base of the Himalaya, and up its slopes to about 4000 feet (in favoured localities somewhat higher) between the Kangra valley on the west and the Darrang district in Assam on the east.

(ii) the country east of the Bengal plains comprised in the Garo, Khasi and Jaintea hills, and the hilly district of Nowgong to the north.



Seedling of *Shorea robusta* reduced to 2/3.

(iii) the hills south west of the Bengal plains, westward to Pachmarhi, and southward into the Circars, as far as Jeypur.

In a general way these three areas are together the rim of the cup into which the monsoon current from the Bay of Bengal pours its moist air from May to September, with precipitations from June. At the extreme western points the average annual rainfall is reduced to below 40 inches. In other places the precipitation is upward of five times as much. On the hills and also to some extent in the plains, Sal withstands frost. Everywhere it demands good drainage.

The Sal tree flowers in March or April when the dry season is on, changing its leaves rapidly just previously or at the same time; and this in every year: but a good seed crop is only yielded about once in three years. McIntyre (*Notes on Sal in Bengal,* Forest Pamphlets Series, 1909, p. 2) attributes to unfavourable weather the failure to yield annually: but this is a point which demands investigation. The seeds are ripe in the commencement of the rains, and are ready for immediate growth; in fact they often germinate on the tree (vide Brandis, *Forest Flora of the North-west and Central India,* 1874, p. 27, and also earlier writers): if drought follows their fall to the ground, they are likely to die.

They are starchy (about 60 per cent of starch on dry weight); but they fail as a food on account of tannins present to the extent of 8 per cent. These tannins act on man as poisons causing indigestion, constipation and ultimately death (see Reinherz, in *The Agricultural Ledger*, 1904, No. 5, pp. 33—36). It is obvious that they serve to protect the seed, but not altogether;* for many animals feed on them†: and, as with all vegetation, there are specialised insect-enemies.‡

The seeds of the Malayan Shoreas seem very similar in being relatively rich in tannins; and to have similar enemies.

The parent Sal tree many attain 20—25 feet in girth, but it is recorded that it may be a seed-bearer with as little girth as 7½ inches (Troup in *Forest Bulletins,* New Series, No. 8, 1912). Troup was unable to show any laws of variation relating to the viability of seed got from trees of different sizes, of different degrees of soundness, of different localities, or of seed ripened in the beginning, middle or end of the seed-time, but he suspected a possible law in regard to the last, the middle of the season being best. Haines (*A Forest Flora of Chota Nagpur,* 1910, p. 178), has said that the earliest are generally bad.

There is no albumen around the embryo plant in the seed, but all its store of food is in its gorged bilobed cotyledons. It has been shown for *S. leprosula* (this *Journal,* 1917, p. 161) how the lobes of the cotyledons, enwrapping in their growth the placentae and the sterile cells of the ovary, push themselves into the apex of the fruit. In *S. robusta* the two lobes of the inner cotyledon alone attain it, shutting out the outer, as suggested in the illustration above.

The seeds, upon falling to the ground, thrust the radicle to the soil chiefly by the growth of the stalks of the cotyledons, the cotyledons themselves remaining loosely apposed, and scarcely functioning as assimilatory organs. Herein is a great divergence from what is to be found in those Malayan Shoreas that are known to me, a divergence which carries *S. robusta* to a position in the order close to the genus *Dipterocarpus;* for the cotyledons in *Dipterocarpus* remain imprisoned within the wall of the fruit, do not assimilate, and as the young plant grows are depleted of their food through their stalks which elongate, although not exactly to plant the radicle as those of *S. robusta,* but accomodatingly to the elongation of the hypocotyl.

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[*] Tannins are present also in the bark of the Sal tree to the extent of 8—10 per cent (vide Pearson, Economic value of Shorea robusta, in *Indian Forest Memoirs,* ii. part 3, 1913).

[‡] In Mr. Hole's experiments porcupines were troublesome (*Indian Forest Records,* v, part 4, 1916, p. 52).

[†] E. B. Stebbing describes the Indian insect enemies of *Shorea robusta* in a paper entitled *some Assam Sal insect pests,* Forest Bulletin Series, 1907.

This relationship of *S. robusta* to the genus *Dipterocarpus* finds confirmation in the anatomy as determined by Heim. Heim, (*Recherches sur les Dipterocarpacées,* Paris, 1890, p. 40), having divided *Shorea* into nine sections, and having put *S. robusta* into the first of them, called *Eu-Shorea,* wrote of it, "This section seems to make connection with the genus *Dipterocarpus* especially by reason of the distribution of its vascular bundles in the leaf-stalk, and in the number of resin canals; but in the shape of the stamens it diverges more than do other sections such as *Antho-Shorea.*"

Unfortunately of Heim's Eu-Shoreas there are many species yet to study.

S. robusta at its best, where the drainage is excellent and the soil is deep, makes pure forests, of a beautiful dark green, and often with the ground coated by seedlings struggling up under the parent trees. Hole (*Indian Forest Records,* v., part 4, p. 52) has found that the seedlings will grow healthily under an artificial shade which reduces the light to .015, demonstrating so how well the species is able to tolerate, when young, the deep shade those forests, wherein it asserts itself continuously against other trees. This power of making pure forests is possessed by some other Dipterocarps; *Dipterocarpus* itself possesses it, and *Dryobalanops Camphora,* and *Shorea assamica,* none in competition against another, but each in its own particular geographic region:—*S. robusta* round the rim of the Bengal plains, *S. assamica* in Upper Assam, *Dipterocarpus* chiefly through Burma, Siam and Indo-China, and *Dryobalanops* in Sumatra, Borneo and the Malay Peninsula.

Some observers have written of the success of *Shorea robusta* as connected with forest fires. Gamble pointed out that it drops its seeds after the season of fires is over, and shares the profit got thereby in its less pure forests with *Stereospermum chelonoides*—a rather constant companion which sheds its seeds at the same time. Brandis (*Forest Flora* XIII, p. 53) remarked that the reproduction of Sal may be materially increased by the circumstance that the seed falls after the fires have passed. Many foresters, the last Troup (*Indian Forester,* 1916, p. 57), have pointed out that if fire is withheld the coating of dead leaves on the forest floor prevents the sprouting seeds from sending their roots down, and betrays them by drying rapidly when a dry spell comes. Others have pointed to the way in which a coating of grasses and other herbs may hold the seed from off the ground by its wings, so that it germinates in the air, to be dried up soon: and that as these leaves and grasses are destroyed by the fires, a way is thereby prepared for the seed.

Haines (*Indian Forester,* 1917, p. 311) has stated that fires are advantageous in another direction, namely that they diminish the abundance in the forests of the fungi which attack Sal.

But if the fires be repeated too soon any occasional advantage is lost*. And after all what is the advantage where conditions are favourable to Sal, for there considerably over ninety-nine per cent of the seeds which fall must fail for want of room.

It cannot be that the liability of Sal or Dipterocarpus forests to fires assists at all in maintaining pure forest other than perhaps as Haines suggests in destroying fungi. So much is this recognised that every Indian forester of experience advocates fire protection, as a principle. But fire applied not more frequently than, say, triennially beyond the edge of pure forest may assist the Sal or Dipterocarpus in extending by clearing the way for the seed and damaging the competitors. Unfortunately forest fires where likely to occur, are annual. And under this view, the failure of the Malayan Shoreas to make pure forests is scarcely to be ascribed to their freedom from them.

It is on deep open soils that Sal makes the pure forests—soils such as happen to be peculiarly well developed by rapid rivers from out of the rocks of the Himalaya, soils where the water may sink in dry periods in such a way† as to injure many plants which compete elsewhere. Sal finds on these soils the combination of yet unanalysed conditions ideal to it: and obviously it has a peculiar physiological adaptation to their nature to which its success may be ascribed. This physiological adaptation it shares somewhat with *Shorea assamica*: for *Shorea assamica* makes its pure forests on just the same kinds of soil.

Sal seedlings have a wonderful power of replacing the primary stem if it be lost, even right from the axils of the cotyledons. So far I have seen nothing like it in the Malayan Shoreas. Not once only can the seedling make good the leader, but it may renew it again and again through some years. Hole has illustrated this process in three places (*Indian Forest Records,* v, part 4, 1916, plate 1; *Indian Forester,* 1916, plate 23, p. 336; and *Agricultural Journal of India,* Indian Science Congress Number, 1916, plate 1.)

This loss of the leader is usually caused by something which is not a forest fire, though forest fires may of course cause it; and in at least ninety per cent of cases it comes from some underground influence acting through the root. Hole finds that the mixing with the soil of leaves, especially of Sal leaves, increases it. and he suggests that a toxic body is produced in the process of their decomposition directly or indirectly. If this be so, then light forest fires by removing the leaves on the forest floor may do good.

For the destruction of the Sal forests at the foot of the Himalaya between the rivers Gandak and Teesta, by repeated firing, see my note in the Journalof the Asiatic Society of Bengal, 1916, p. 267.

† Cf. Milward's statement (*Indian Forester,* xxviii, 1803, p. 411) that under excellent Sal in Oudh the water may be 40 feet down.

This dying back of Sal seedlings is most intense in the rains; the seedling in appearance dies back exactly as it does also from drought, as if the plethora of water at the roots works in the same way as its want. But Sal seedlings can be grown in water cultures, and therefore contact with water itself has nothing to do with it. It would rather seem to be something shut out from or brought to the roots (Hole's toxic body for instance) by the water. Death can be caused in pots without the neighbourhood of other plants, and and therefore by no toxic excretion of another plant (Hole in *Indian Forester,* 1916, p. 337). The Malayan Shoreas too die in wet periods, as far as I have observed, but there is this difference that Sal dies back only, whereas they die out. Herein is a difference between the two, perhaps connected with the greater success of the Sal (within its area),—a difference which demands investigation.

For the purpose in hand, namely to form a sound classification of the order to which these trees belong, two facts may be useful, (i) that the Indian species *S. robusta* and *S. obtusa,* are more able to make pure forests than any of our many Malayan Shoreas, and (ii) that *S. robusta,* at any rate, is in its seedling more similar to the genus *Dipterocarpus* which also forms pure forests, than are the Malay Shoreas, *S. leprosula,* Miq., *S. rigida,* Brandis, *S. macroptera,* Dyer, *S. bracteolata,* Dyer, and *S. gibbosa,* Brandis. The pure forests are not the creation of man through firing: but the mixed forests may carry his impress.

A new Dendrobium, D. gracilipes, from the Rhio Archipelago.

By I. H. Burkill.

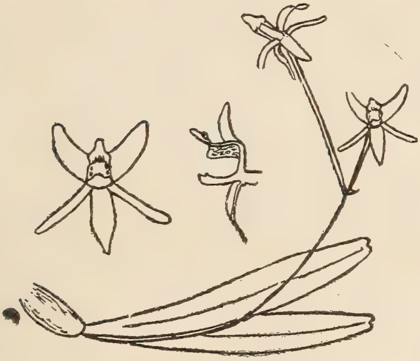


Figure of *Dendrobium gracilipes* reduced to ½: the flower in section and in face view natural size.

Dendrobium (Sarcopodium) gracilipes. *Rhizoma* longum, seu pennae corvinae crassum. *Pseudobulbi* juniores bracteis scariosis vaginati, deinde nudi, 4 cm. disparsi, oblique ovoidei, circa 3 cm. longi, politi, viridissimi, nitentes, diametro ad 14 mm., bifoliati. *Folia,* glabra, sessilia, lineari-elliptica, ad 16 cm. longa, ad 2.5 cm. lata, polita nitentia, saturate viridia, pagina inferiori pallidiora, apice bidentata dentibus rotundatis. *Pedicellus* glaber, capillaris inter folia natus, biflorus, viridis. *Ovarium* pallidum, longum. *Sepala* eburnea, lanceolata; dorsale cum ovario angulum rectum faciens; lateralia ad pedem gynostemii decurrenta mentum rectangulare 5 mm. longum formantia, leviter curvata; omnia 15 mm. longa, 5 mm. lata, acuta. *Petala* linearia, sepalis aequilonga, 1.5 mm. lata, eburnea, leviter curvata, acuta. *Labellum* trilobatum; lobi laterales velut parietes antri erecti, margine superiori admodum recti, intus purpureo-puncticulati, apice purpurei, etiamque in marginibus superioribus purpurei, in margine inferiori saturate crocei; lobus medius subdeltoideus ex basi lata apice subacuminatus, marginibus et apice eburneus, versus fauces croceus, tri-carinatus. *Columna* ex ovario prorsa, eburnea, equilateralis, ad basi infra rufobrunnea.

RHIO. Colitur in Singapur a B. K. Saheb, floruit mense Octobri et mense Novembri.

This species is near *Dendrobium longipes,* Hook. f. and *D. macropodium,* Hook. f., the former especially. It is much more slender than either, and indeed is a really graceful little orchid. From *D. longipes* it differs also in its narrow petals and the straighter side to the lateral lobes of the labellum. These lateral lobes are folded upwards so as to make the walls of the rectangular tunnel into which insects are invited that they may fertilise the flowers. The mid lobe of the labellum is very much as in *D. longipes* (vide Hooker's *Icones plantarum,* plate 2617) : its bright yellow centre set off by the purple at its back on the side lobes and the reddish brown in the back under the column. The rest of the flower is ivory white. The long slender ovaries are as in *D. longipes.* and as in *D. macropodium.*

On the whole the flower superficially suggests a *Coelogyne.*

The Cannibal King in the "Kedah Annals."

By C. O. Blagden.

The story of the cannibal king on pp. 71-77 of the "Hikayat Marong Mahawangsa" (*J. R. A. S., S. B., No. 72, May, 1916*), differs a good deal in setting and incident from the similar tale in Number 537 of Fausböll's series of the "Maha-Sutasoma-Jataka" (vol. V, p. 246 seq. of the translation by Francis in Cowell's edition): but these two tales have so many points of agreement that it is difficult to suppose they are unconnected. I shall mention a few of the chief differences, as they occur in the course of the narrative; but my main purpose will be to draw attention to points of resemblance.

The openings differ. In the Indian story the king of Benares developes cannibal propensities in accordance with Buddhist ideas of transmigration, because in a previous existence he has been a Yakkha or ogre; and he has occasion first to taste human flesh, because one day a dog steals his plate of meat and the king's cook (a man) dishes up instead a portion of flesh cut from a fresh corpse in the cemetery.

In the Malay story, the cannibal king of Kedah is the son of an ogress or *Gĕrgasi;* and he first tastes human blood, when one day his cook, a woman, cutting her finger by accident lets the blood drip into a vegetable curry and there is no time to prepare another dish.

Incidentally one may surmise that the detail of the "fresh corpse" in the Indian version is an instance of the old Buddhist custom (similar to the Parsi habit) of exposing corpses to be eaten by birds of prey; and one may compare Groeneveldt's "Notes on the Malay Archipelago and Malacca," *s.v.* Tun-Sun, in "Essays Relating to Indo-China, Second Series," vol. I, p. 240. where however the dying are so exposed.

After the opening the two stories agree in many details. In both. the king takes great pleasure in his horrid meal, even before he is aware of its ingredients. In both, the cook is threatened with death in default of confession as to the *recipé!* In both, the cook confesses, and the king, so far from being shocked, orders more of the gruesome fare, battening first on prisoners from the gaol and later kidnapping the bodies of innocent people to supply the royal table; until at last there is uproar in the realm.

In the Indian tale the cook is caught taking flesh from the body of a woman he has just killed; in the Malay, the king is attacked by a bravo and a great fight ensues. In both tales, the king's ministers, moved by popular clamour, warn their master; and he rejecting the warning is expelled from his country, peaceably in the Indian version and taking his sword and cook with him, ignominiously in the Malay story after a desperate onslaught on the palace, whence he escapes by a private door.

In the Indian story, the king after a number of adventures in the jungle is converted from cannibalism by Sutasoma, an incarnation of the Buddha in a previous existence—for the "Jatakas" purport to be stories of the Buddha's earlier births: he is brought to Benares a changed man, and is welcomed by the son who reigns in his stead. In the Kedah version, the king mates with a girl of good family in a remote part of the country and, after once more escaping his enraged pursuers, is lost sight of; but the son of that union is restored to reign in the capital by virtue of the magical sagacity of an elephant in detecting the royal infant and by virtue of the king of Siam's warrant.

When it is remembered that in Buddhist countries the "Jatakas" are known not only to the literate but in popular folk-lore, it becomes reasonable to infer that the Kedah tale has been borrowed from a Siamese source. Man-eating ogres are usual enough; but in the two tales considered, coincidence of small detail seems to demand explanation more particular than the common uniformity of the human mind in the invention of folk-tales.

For a parallel in Sinhalese legendary history those interested may consult p. 234 of my "Catalogue of European Manuscripts in the India Office Library, vol. I, part I."

The Hadramaut Saiyids of Perak and Siak.

By R. O. Winstedt.

On pp. 2-5 of *Law Part II, The Ninety-Nine Laws of Perak,* in *Papers on Malay Subjects,* published by the F. M. S. Govt., Mr. R. J. Wilkinson pointed out the great influence a certain Sayid family exercised on the history of Perak in the XVIIIth century. The family acquired the highest state offices, those of Orang Kaya Bĕsar and of Mantĕri. and one of its members acted even as Bĕndahara. Scions of this Sayid house were sought for eagerly in marriage and married into the families of all the greater Perak chiefs. One married the sister of Sultan Iskandar,—Marhum Kahar (whose reign is described in the *Misa' Mĕlayu*) and was the father of a Perak Sultan. Another married a daughter of the raja of Siak and from their union were descended the rulers of Siak. Several were accounted saints.

How came this family to win such prestige and power?

Their genealogical tree copied by a former *mufti* of Perak, Raja Haji Yahya who in his youth gave Sir William Maxwell some Perak royal genealogies (*J. R. A. S., S. B. XIV,* p. 305) explains the matter. They were of the great house of Ahmad bin Esa al-Mohajir, the founder of the Sayid house of Hadramaut, which considers its nobility better established than that of all the other descendants of the Prophet's daughter, and refuses the hands of its daughters, even its half-caste daughters to Sherifs and Sayids come from other places. Van den Berg's "Hadramaut and the Arab colonies in the Indian Archipelago" gives the following particulars of this family: I quote from Sealy's translation (Bombay, 1887).

"The founder of the Sayids of Hadramaut is a certain Ahmad bin Isa, surnamed al-Mohajir who, according to tradition, established himself in the country about ten centuries ago. He was a native of Bassora........ His genealogy is as follows: bin Esa bin Muhammad an-Nakib bin Ali al-Oraidthi bin Ja'far as-Sadik bin Muhammad al-Bakir bin Ali Zainu'l-abidin bin al-Husain. To distinguish themselves from other Sayids those of Hadramaut call themselves *al-Alawiyin* descendants of 'Alawi, grandson of Ahmad bin Esa. Seven generations after Ahmad bin Esa the genealogical tree of the Sayids branches off with the two sons of Muhammad surnamed Sahib a'r-Robat. After this division, we see the genealogical tree of the Sayid divide itself more and more into separate families. I will give the names of the families so far as they exist in our days and their descent is generally acknowledged authentic:—

Al-a's-Sakkaf
— Akil
— al-'Aidarus
— Moshayyakh
— Taha
— a's-Safi
— ba-Umar
— Munawwar
— Shihabu'd-din
— al-Hadi
— al-Mashhur
— a'z-Zahir
— a's-Sulaibiyya
— bin-Kitban
— al-Musawa
— al-Baiti
— Ismail
— Maknun
— bin Barahim
— ba-Shumailih
— Tawil
— Akil bin Salleh
— al-Attas
— a'sh-Shaikh Bubakr
— al Haddar
— bu-Fotaim
— Maula-a'd-Dawila
— Mukaibil
— Maula Khilih
— bin Sahl
— bin Yahya
— ba-Abud
— al-Hindwan
— al-Muhajjab
— Abdu'l-Malik
— Hashim
— Simait
— Nidhir
— Tahir
— Husain al-Kara

Al-al-Haddad
— ba-Fakih
— ba-Faraj
— ba-Surra
— al-Hodaili
— Aidid
— Jonaid
— a'sh-Shibli
— Burum
— al-Monaffir
— Hamid
— Mutahhar
— Midhar
— Marzak
— Mudihij
— abu-Nomai
— Fad'ak
— Khirid
— ba-Baraik
— Khinaiman
— ba-Husain
— ba-Ali
— al-Hut
— al-Ghaidtha
— al-Hamil
— al-Bar
— al-Kaf
— ba-Rakba
— al-Jifri
— al-Bidth
— bil-Fakih
— al-Kadri
— Siri
— ba Harun
— al-Habshi
— a'sh-Shatiri
— a'sh-Shanbal
— ba'sh-Shaiban
— Jamal-al-lail
— al-Mihdthar

Among these families there are some which at this day no longer exist in Hadthramut but that does not mean they are extinct. Thus the family of Abdu'l-malik still exists in British India under the name of Al Athamat Khan. In the same way that of Ba'sh-Shaiban exists in Java and that of al-Kadri at Pontianak."

Below I give the leading names in the Perak genealogical tree.

After the name of Sayid Ahmad bin Esa, the Malay genealogist has noted how he was a native of Bassorah.

The Perak family calls itself *bangsa Jamal-al-ail;* after the father of Sayid Husain al-Faradz, it is said. Sayid Husain al-Faradz bin Jamal-al-ail is reputed to have been the religious teacher of the first Sultan of Perak. ("Notes and Queries, R. A. S., S. B., No. 3, (1886), p. 70). He is recorded as having had a brother Sayid Yusuf and a sister Siti Kĕpayan, but that is all we hear of them. Judging by the genealogies, he must have flourished in the first half of the XVIIth century.

Siti Fatimah
Saidina Husain
Saidina Zainu'l-abidin
Saidina Musa al-Kathim
Saidina Ali a'z-Zahir
Saidina Muhammad Bakir
Saidina Jaffar a's-Sadik
Saidina Ali a'z-Zahir
Saidina Muhammad a'n-Nakib
Saidina Esa
Saidina Ahmad al-Mohajir
Saidina Muhammad
Saidina Alwi
Saidina Ali Khali-kasam ba' Alwi
Saidina Muhammad Sahib Mirbat
Saidina Muhammad al-Fakih[1]
Saidina Maula'd-dawilah Muhammad
Saidina Abdu'r-rahman Sakaf[2]
Saidina Abdu'llah Jamal-al-ail
Saidina Alwi

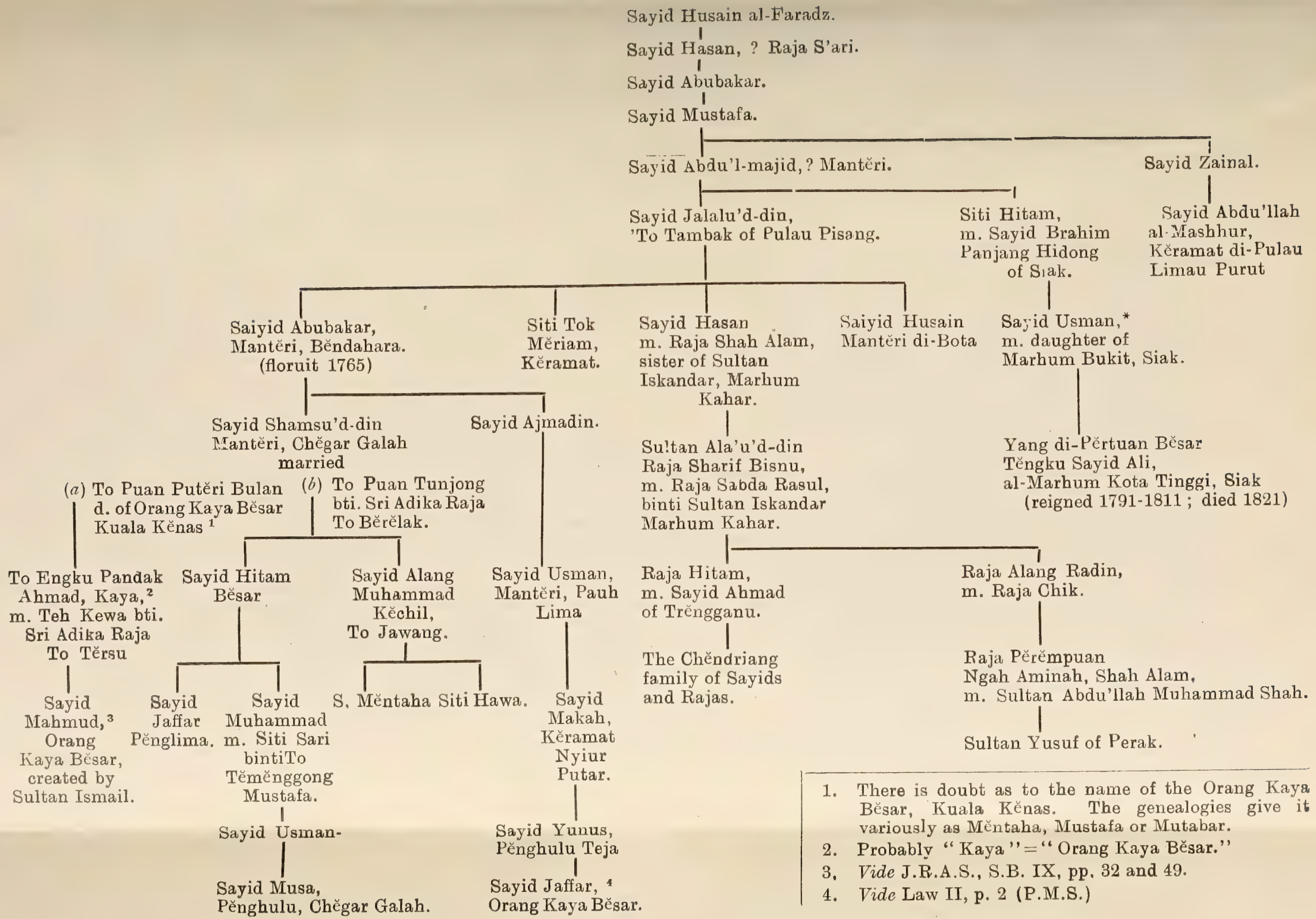
Saidina Abdullah
|
Saidina Maulana
a's-sharif Jamal-al-ail al-Jafri
|
Saidina Sharif
Husain al-Faradz

(He was the first to come to Perak.)

Of the above,[1] Saidina Muhammad al-Fakih had another son Alwi, whose descendants went to Tĕrĕngganu and one of them Sayid Ahmad returned to Perak and married Raja Hitam daughter of Sultan Ala'u'd-din Raja Sharif Bisnu of Perak, his descendants being the rajas and sayids of Chenderiang in Batang Padang, Perak. The pedigree of this branch is recorded: Sayid (or Raja) Ahmad bin Muhammad bin Yassin bin Akil bin Ahmad bin Yahya bin Hasan bin Ali bin Alwi bin Saidina Muhammad al-Fakih

[2] Saidina Abdu'r-rahman had a number of children: Jamal-al-ail, al-Akil, al-Aidarus, Al-Abubakar, Salim, al-Hadr, Yahya, al-Mathar. Al-Aidarus begot a son Saiyid Hasan, who went to Kedah and in his turn begot Saiyid Husain of Kuala Muda.

The main Perak branch then runs as follows:—


Sayid Husain al-Faradz.
Sayid Hasan, ? Raja S'ari.
Sayid Abubakar.
Sayid Mustafa.
Sayid Abdu'l-majid, ? Mantĕri.
Sayid Zainal.
Sayid Jalalu'd-din, 'To Tambak of Pulau Pisang.
Siti Hitam, m. Sayid Brahim Panjang Hidong of Siak.
Sayid Abdu'llah al-Mashhur, Kĕramat di-Pulau Limau Purut
Saiyid Abubakar, Mantĕri, Bĕndahara. (floruit 1765)
Siti Tok Mĕriam, Kĕramat.
Sayid Hasan m. Raja Shah Alam, sister of Sultan Iskandar, Marhum Kahar.
Saiyid Husain Mantĕri di-Bota
Sayid Usman,* m. daughter of Marhum Bukit, Siak.
Sayid Shamsu'd-din Mantĕri, Chĕgar Galah married
Sayid Ajmadin.
Sultan Ala'u'd-din Raja Sharif Bisnu, m. Raja Sabda Rasul, binti Sultan Iskandar Marhum Kahar.
Yang di-Pĕrtuan Bĕsar Tĕngku Sayid Ali, al-Marhum Kota Tinggi, Siak (reigned 1791-1811; died 1821)
(a) To Puan Putĕri Bulan d. of Orang Kaya Bĕsar Kuala Kĕnas [1]
(b) To Puan Tunjong bti. Sri Adika Raja To Bĕrĕlak.
To Engku Pandak Ahmad, Kaya,[2] m. Teh Kewa bti. Sri Adika Raja To Tĕrsu
Sayid Hitam Bĕsar
Sayid Alang Muhammad Kĕchil, To Jawang.
Sayid Usman, Mantĕri, Pauh Lima
Raja Hitam, m. Sayid Ahmad of Trĕngganu.
Raja Alang Radin, m. Raja Chik.
The Chĕndriang family of Sayids and Rajas.
Raja Pĕrĕmpuan Ngah Aminah, Shah Alam, m. Sultan Abdu'llah Muhammad Shah.
Sultan Yusuf of Perak.
Sayid Mahmud,[3] Orang Kaya Bĕsar, created by Sultan Ismail.
Sayid Jaffar Pĕnglima.
Sayid Muhammad m. Siti Sari binti To Tĕmĕnggong Mustafa.
S. Mĕntaha
Siti Hawa.
Sayid Makah, Kĕramat Nyiur Putar.
Sayid Usman-
Sayid Musa, Pĕnghulu, Chĕgar Galah.
Sayid Yunus, Pĕnghulu Teja
Sayid Jaffar,[4] Orang Kaya Bĕsar.

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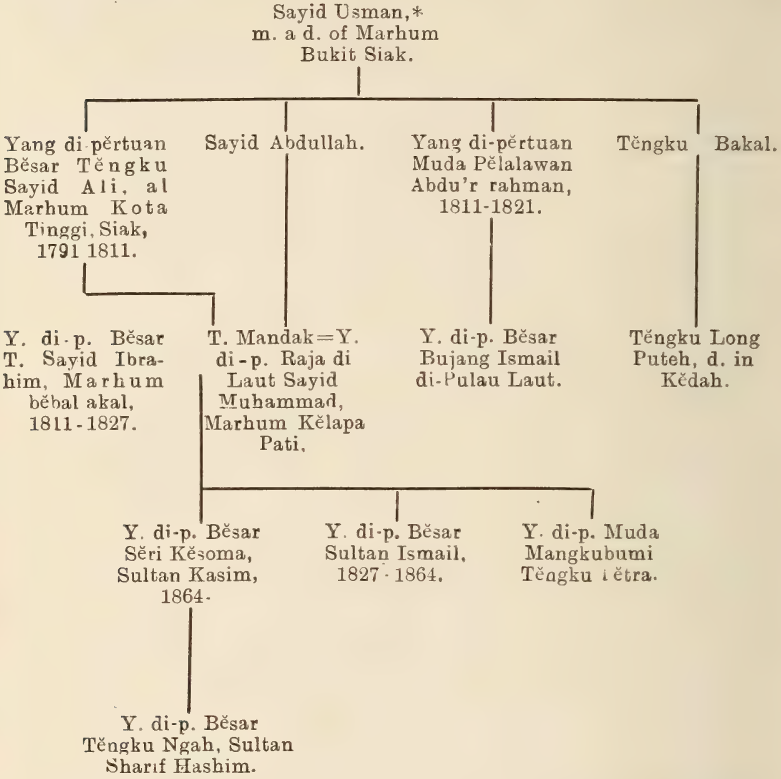
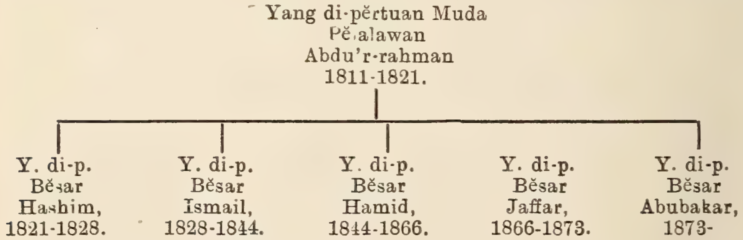
1. There is doubt as to the name of the Orang Kaya Bĕsar, Kuala Kĕnas. The genealogies give it variously as Mĕntaha, Mustafa or Mutabar.
2. Probably "Kaya" = "Orang Kaya Bĕsar."
3. *Vide* J.R.A.S., S.B. IX, pp. 32 and 49.
4. *Vide* Law II, p. 2 (P.M.S.)

The Siak family is given by our genealogist as follows; omitting minor names:—


Sayid Usman,* m. a d. of Marhum Bukit Siak.
Yang di-pĕrtuan Bĕsar Tĕngku Sayid Ali, al Marhum Kota Tinggi, Siak, 1791 1811.
Sayid Abdullah.
Yang di-pĕrtuan Muda Pĕlalawan Abdu'r rahman, 1811-1821.
Tĕngku Bakal.
Y. di-p. Bĕsar T. Sayid Ibrahim, Marhum bĕbal akal, 1811-1827.
T. Mandak=Y. di-p. Raja di Laut Sayid Muhammad, Marhum Kĕlapa Pati.
Y. di-p. Bĕsar Bujang Ismail di-Pulau Laut.
Tĕngku Long Puteh, d. in Kĕdah.
Y. di-p. Bĕsar Sĕri Kĕsoma, Sultan Kasim, 1864-
Y. di-p. Bĕsar Sultan Ismail, 1827-1864.
Y. di-p. Muda Mangkubumi Tĕngku Pĕtra.
Y. di-p. Bĕsar Tĕngku Ngah, Sultan Sharif Hashim.

We can add to this from Dutch sources, whence also I have taken the above dates. The Siak family styled their rulers Sultans. Sayid Usman was of the family bin Khihab. The Pelalawan branch runs further, according to Dutch sources:—


Yang di-pĕrtuan Muda Pĕlalawan Abdu'r-rahman 1811-1821.
Y. di-p. Bĕsar Hashim, 1821-1828.
Y. di-p. Bĕsar Ismail, 1828-1844.
Y. di-p. Bĕsar Hamid, 1844-1866.
Y. di-p. Bĕsar Jaffar, 1866-1873.
Y. di-p. Bĕsar Abubakar, 1873-

This last looks a very doubtful genealogy.

It was from the Siak royal Sayid family that Sultan Ismail of Perak war notoriety was descended. His father Raja Sayid Hitam was of this Siak family and was given in marriage by Sultan Abdullah Muadzam Shah (*marhum khalilu'llah*) of Perak one Raja Mandak, daughter of Marhum Bongsu, his relative.

Some Perak Pedigrees.

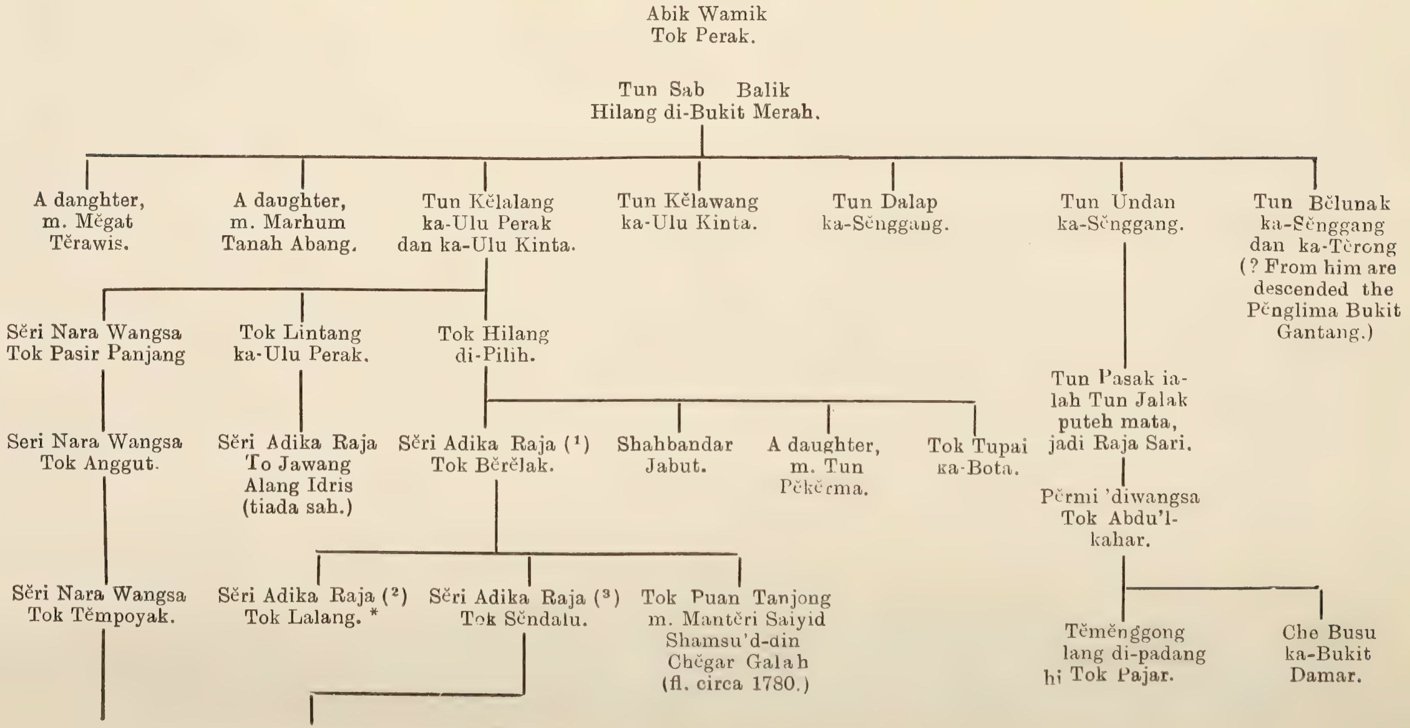
By R. O. Winstedt.

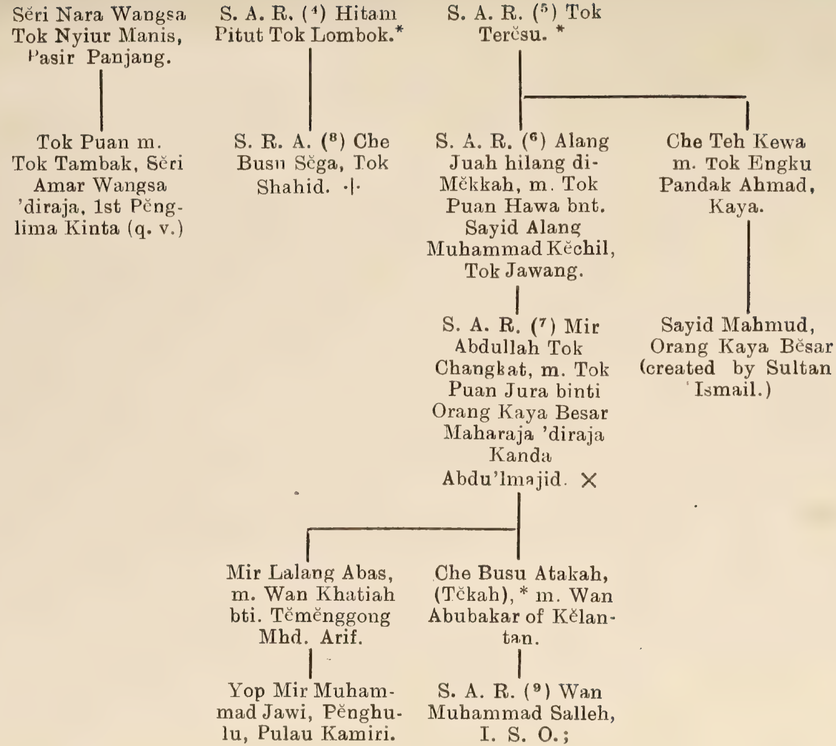
These pedigrees are interesting because comparison of sufficient genealogies of the royal and noble families of a country enables one to fix approximately the main dates of its history; and this is necessary in dealing with Malay history, whose records as a rule entirely lack chronological *data*.

The genealogies following are copied from MS. by that enthusiatic genealogist, Raja Haji Yahya, late *mufti* of Perak.

Tun (or Tan) Saban from whom these great house of the Sri Adika Raja (Wilkinson's "History I," pp. 80-81, in "Papers on Malay Subjects") and the lesser house of the Sri Amar 'diraja (*id.* p. 86) are descended, is the earliest name in the history of Perak (*id.,* pp. 71-73, J. R. A. S., S. B., and Winstedt's "Malay Literature, II," pp. 40-42 or J. R. A. S., Vol. XIII, Part IV, pp. 501-507); from comparative study of the Perak genealogies one might doubt if he flourished earlier than the end of the seventeenth century, but the more reliable genealogy of the Perak Sayids would lead one to ascribe the founding of the Perak dynasty to the beginning of that century.

The Family of the Seri Adika Raja.


Abik Wamik Tok Perak.
Tun Sab Balik Hilang di-Bukit Merah.
A danghter, m. Mĕgat Tĕrawis.
A daughter, m. Marhum Tanah Abang.
Tun Kĕlalang ka-Ulu Perak dan ka-Ulu Kinta.
Tun Kĕlawang ka-Ulu Kinta.
Tun Dalap ka-Sĕnggang.
Tun Undan ka-Sĕnggang.
Tun Bĕlunak ka-Sĕnggang dan ka-Tĕrong (? From him are descended the Pĕnglima Bukit Gantang.)
Sĕri Nara Wangsa Tok Pasir Panjang
Tok Lintang ka-Ulu Perak.
Tok Hilang di-Pilih.
Tun Pasak ialah Tun Jalak puteh mata, jadi Raja Sari.
Seri Nara Wangsa Tok Anggut.
Sĕri Adika Raja To Jawang Alang Idris (tiada sah.)
Sĕri Adika Raja (1) Tok Bĕrĕlak.
Shahbandar Jabut.
A daughter, m. Tun Pĕkĕrma.
Tok Tupai ka-Bota.
Pĕrmi 'diwangsa Tok Abdu'l-kahar.
Sĕri Nara Wangsa Tok Tĕmpoyak.
Sĕri Adika Raja (2) Tok Lalang. *
Sĕri Adika Raja (3) Tok Sĕndalu.
Tok Puan Tanjong m. Mantĕri Saiyid Shamsu'd-din Chĕgar Galah (fl. circa 1780.)
Tĕmĕnggong lang di-padang hi Tok Pajar.
Che Busu ka-Bukit Damar.


Sĕri Nara Wangsa Tok Nyiur Manis, Pasir Panjang.
Tok Puan m. Tok Tambak, Sĕri Amar Wangsa 'diraja, 1st Pĕnglima Kinta (q. v.)
S. A. R. (4) Hitam Pitut Tok Lombok.*
S. R. A. (8) Che Busu Sĕga, Tok Shahid. ·|·
S. A. R. (5) Tok Terĕsu. *
S. A. R. (6) Alang Juah hilang di-Mĕkkah, m. Tok Puan Hawa bnt. Sayid Alang Muhammad Kĕchil, Tok Jawang.
Che Teh Kewa m. Tok Engku Pandak Ahmad, Kaya.
S. A. R. (7) Mir Abdullah Tok Changkat, m. Tok Puan Jura binti Orang Kaya Besar Maharaja 'diraja Kanda Abdu'lmajid. ×
Sayid Mahmud, Orang Kaya Bĕsar (created by Sultan Ismail.)
Mir Lalang Abas, m. Wan Khatiah bti. Tĕmĕnggong Mhd. Arif.
Che Busu Atakah, (Tĕkah), * m. Wan Abubakar of Kĕlantan.
Yop Mir Muhammad Jawi, Pĕnghulu, Pulau Kamiri.
S. A. R. (9) Wan Muhammad Salleh, I. S. O.;

* J. R. A, S., S. B. IX. p. 37. Eridently To' Tĕrĕsu (or Torsoh), flourished about 1800 A. D.

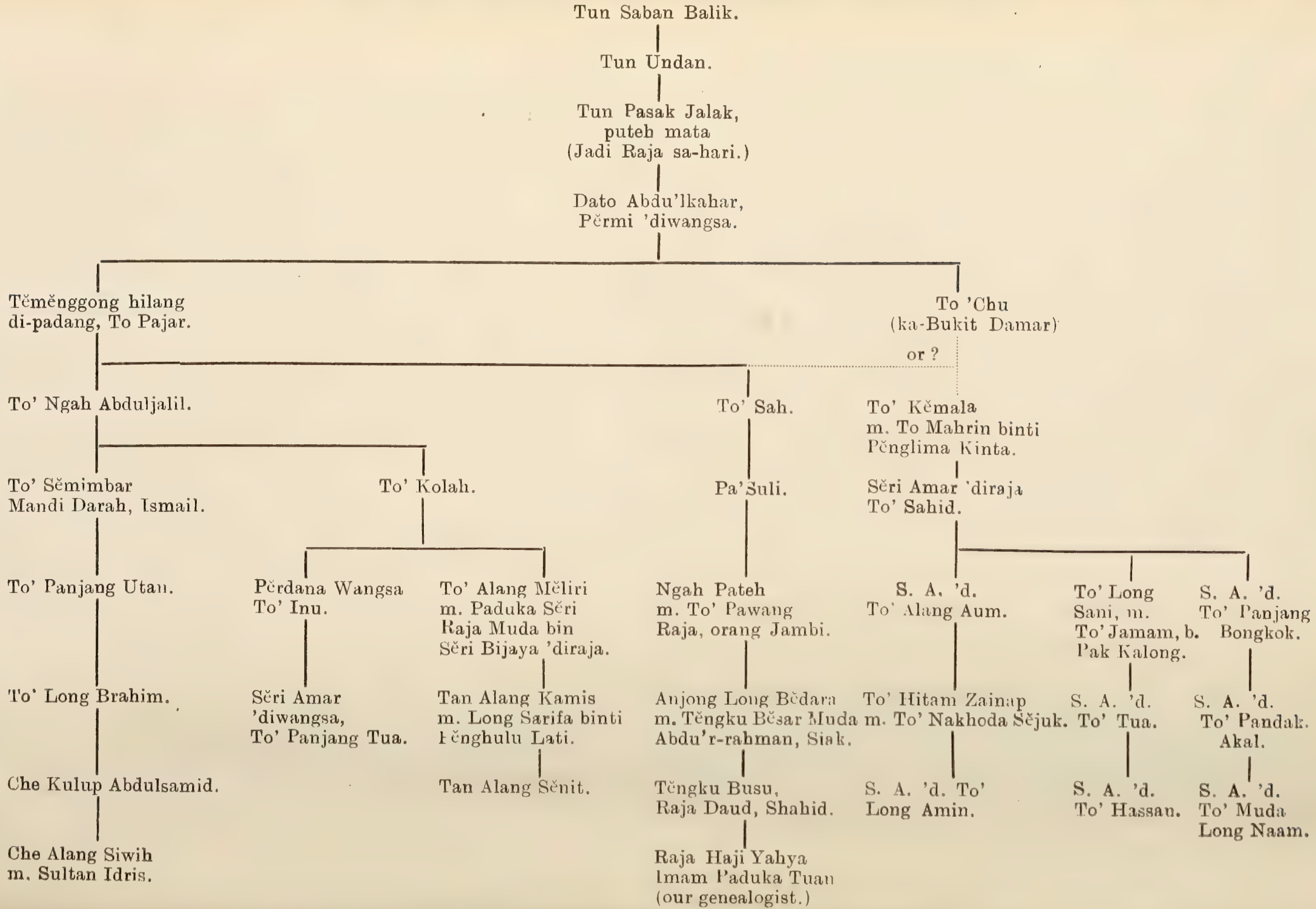
·|· Murdered in Upper Perak, during the Perak war, 1876. hence *Tok Shahid*. See J. R. A. S., S. B. IX, pp. 17-18, 23. Died old and was the youngest child of his parents.

× Abdu'l-majid was the immediate predecessor of Sayid Mahmud in the office of Orang Kaya Bĕsar,

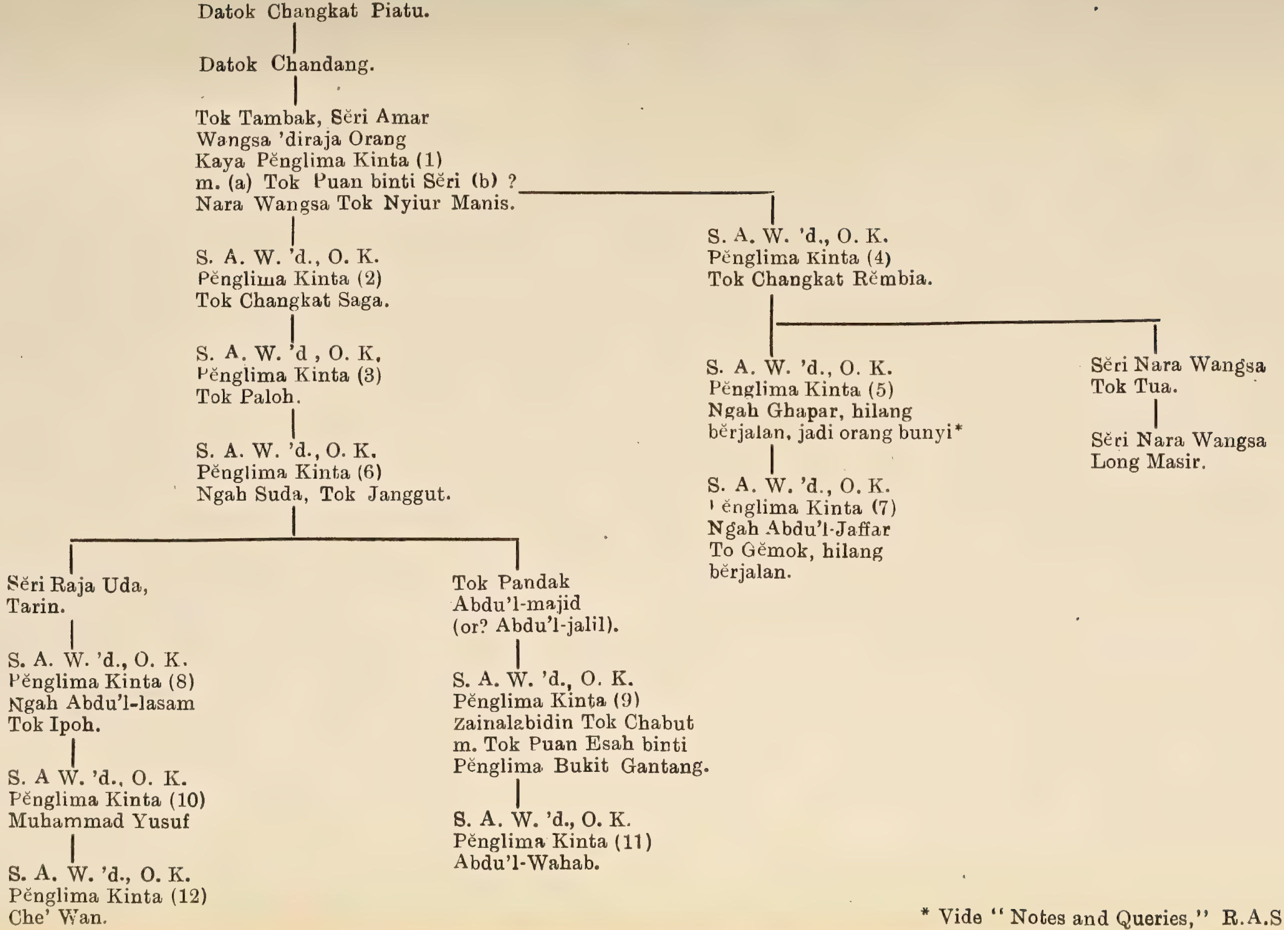
* *Che Busu* "The Youngest"—of nine children. For an account of Wan Abubakar see J. R. A. S., S. B. IX, pp. 12-13.

Small members indicate the member of the holder in descĕnt.

The Family of the Seri Amar 'diraja

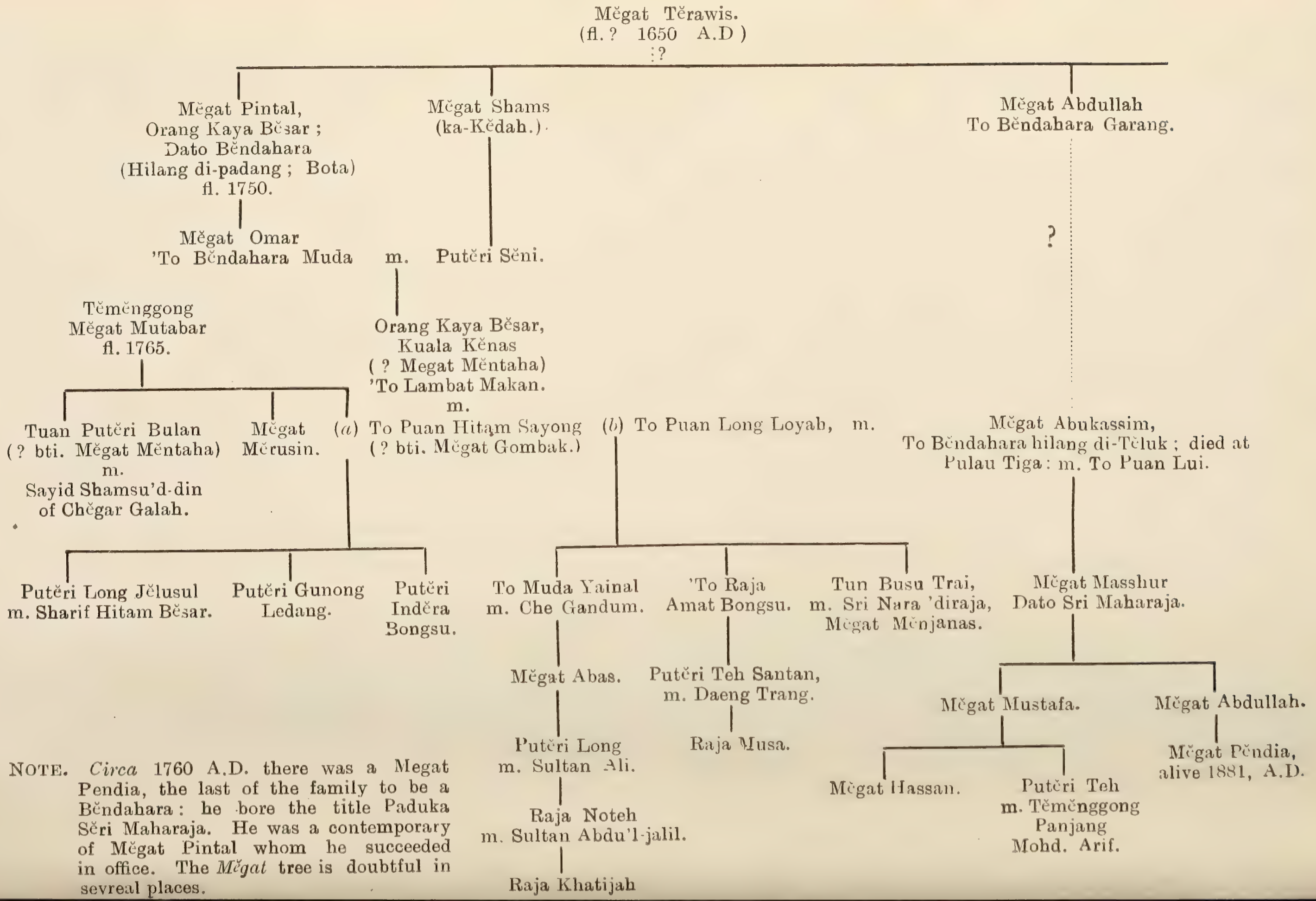

Tun Saban Balik.
Tun Undan.
Tun Pasak Jalak, puteh mata (Jadi Raja sa-hari.)
Dato Abdu'lkahar, Pĕrmi 'diwangsa.
Tĕmĕnggong hilang di-padang, To Pajar.
To 'Chu (ka-Bukit Damar)
or ?
To' Ngah Abduljalil.
To' Sah.
To' Kĕmala m. To Mahrin binti Pĕnglima Kinta.
To' Sĕmimbar Mandi Darah, Ismail.
To' Kolah.
Pa' Suli.
Sĕri Amar 'diraja To' Sahid.
To' Panjang Utan.
Pĕrdana Wangsa To' Inu.
To' Alang Mĕliri m. Paduka Sĕri Raja Muda bin Sĕri Bijaya 'diraja.
Ngah Pateh m. To' Pawang Raja, orang Jambi.
S. A. 'd. To' Alang Aum.
To' Long Sani, m. To' Jamam, b. Pak Kalong.
S. A. 'd. To' Panjang Bongkok.
To' Long Brahim.
Sĕri Amar 'diwangsa, To' Panjang Tua.
Tan Alang Kamis m. Long Sarifa binti Pĕnghulu Lati.
Anjong Long Bĕdara m. Tĕngku Bĕsar Muda Abdu'r-rahman, Siak.
To' Hitam Zainap m. To' Nakhoda Sĕjuk.
S. A. 'd. To' Tua.
S. A. 'd. To' Pandak. Akal.
Che Kulup Abdulsamid.
Tan Alang Sĕnit.
Tĕngku Busu, Raja Daud, Shahid.
S. A. 'd. To' Long Amin.
S. A. 'd. To' Hassan.
S. A. 'd. To' Muda Long Naam.
Che Alang Siwih m. Sultan Idris.
Raja Haji Yahya Imam Paduka Tuan (our genealogist.)

The Family of the Penglima Kinta.


Datok Changkat Piatu.
Datok Chandang.
Tok Tambak, Sĕri Amar Wangsa 'diraja Orang Kaya Pĕnglima Kinta (1) m. (a) Tok Puan binti Sĕri (b) ? Nara Wangsa Tok Nyiur Manis.
S. A. W. 'd., O. K. Pĕnglima Kinta (2) Tok Changkat Saga.
S. A. W. 'd , O. K. Pĕnglima Kinta (3) Tok Paloh.
S. A. W. 'd., O. K. Pĕnglima Kinta (6) Ngah Suda, Tok Janggut.
Sĕri Raja Uda, Tarin.
S. A. W. 'd., O. K. Pĕnglima Kinta (8) Ngah Abdu'l-lasam Tok Ipoh.
S. A W. 'd., O. K. Pĕnglima Kinta (10) Muhammad Yusuf
S. A. W. 'd., O. K. Pĕnglima Kinta (12) Che' Wan.
Tok Pandak Abdu'l-majid (or? Abdu'l-jalil).
S. A. W. 'd., O. K. Pĕnglima Kinta (9) Zainalabidin Tok Chabut m. Tok Puan Esah binti Pĕnglima Bukit Gantang.
S. A. W. 'd., O. K. Pĕnglima Kinta (11) Abdu'l-Wahab.
S. A. W. 'd., O. K. Pĕnglima Kinta (4) Tok Changkat Rĕmbia.
S. A. W. 'd., O. K. Pĕnglima Kinta (5) Ngah Ghapar, hilang bĕrjalan, jadi orang bunyi*
S. A. W. 'd., O. K. Pĕnglima Kinta (7) Ngah Abdu'l-Jaffar To Gĕmok, hilang bĕrjalan.
Sĕri Nara Wangsa Tok Tua.
Sĕri Nara Wangsa Long Masir.

* Vide "Notes and Queries," R.A.S., S.B. No. 3 (1886), p. 81.

Family of the Megats who held the offices of Bendahara till 1770 A.D.

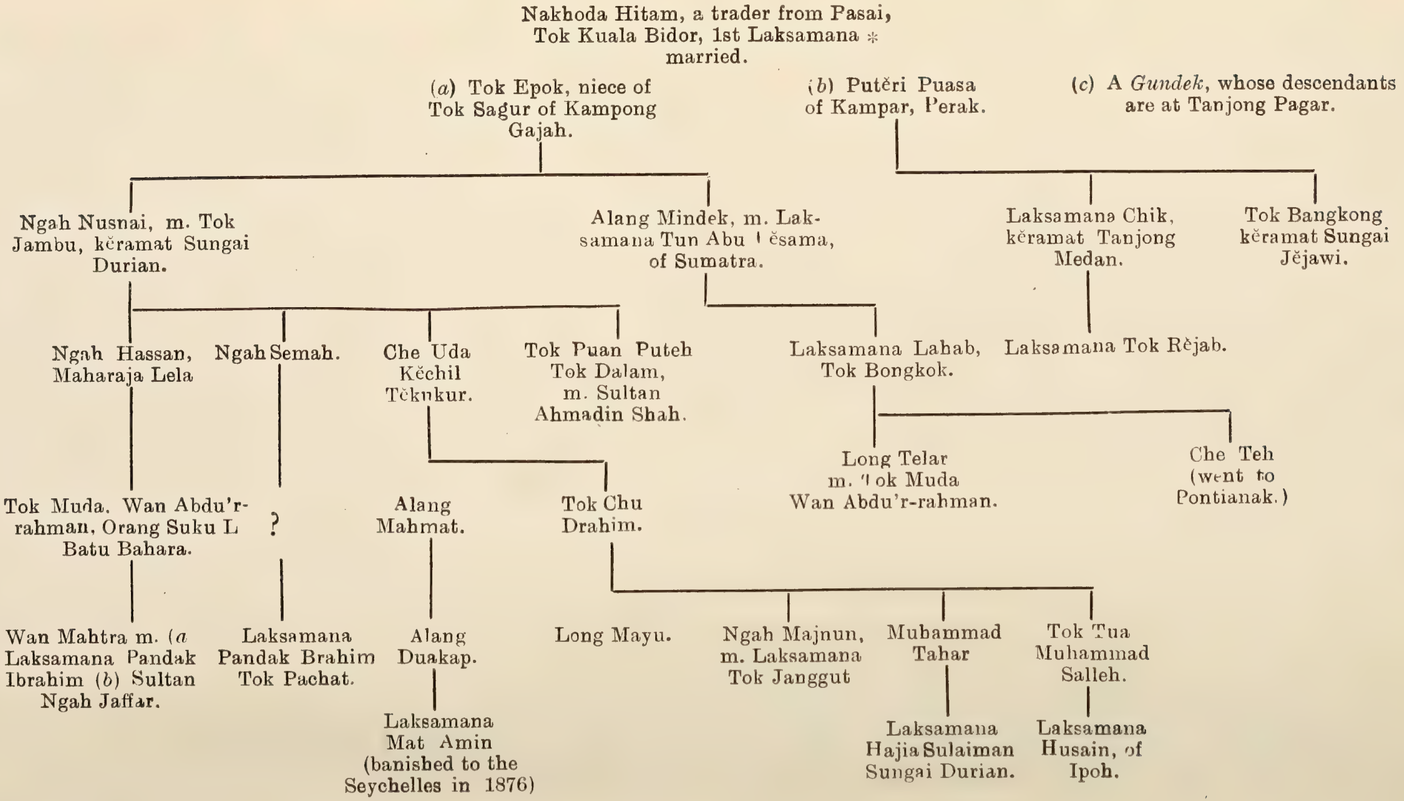

Mĕgat Tĕrawis.
(fl.? 1650 A.D)
:?
Mĕgat Pintal,
Orang Kaya Bĕsar;
Dato Bĕndahara
(Hilang di-padang; Bota)
fl. 1750.
Mĕgat Shams
(ka-Kĕdah.)
Mĕgat Abdullah
To Bĕndahara Garang.
Mĕgat Omar
'To Bĕndahara Muda
m.
Putĕri Sĕni.
?
Tĕmĕnggong
Mĕgat Mutabar
fl. 1765.
Orang Kaya Bĕsar,
Kuala Kĕnas
(? Megat Mĕntaha)
'To Lambat Makan.
m.
Tuan Putĕri Bulan
(? bti. Mĕgat Mĕntaha)
m.
Sayid Shamsu'd-din
of Chĕgar Galah.
Mĕgat
Mĕrusin.
(a) To Puan Hitam Sayong
(? bti. Mĕgat Gombak.)
(b) To Puan Long Loyab, m.
Mĕgat Abukassim,
To Bĕndahara hilang di-Tĕluk; died at
Pulau Tiga: m. To Puan Lui.
Putĕri Long Jĕlusul
m. Sharif Hitam Bĕsar.
Putĕri Gunong
Ledang.
Putĕri
Indĕra
Bongsu.
To Muda Yainal
m. Che Gandum.
'To Raja
Amat Bongsu.
Tun Busu Trai,
m. Sri Nara 'diraja,
Mĕgat Mĕnjanas.
Mĕgat Masshur
Dato Sri Maharaja.
Mĕgat Abas.
Putĕri Teh Santan,
m. Daeng Trang.
Mĕgat Mustafa.
Mĕgat Abdullah.
Putĕri Long
m. Sultan Ali.
Raja Musa.
Mĕgat Pĕndia,
alive 1881, A.D.
Mĕgat Hassan.
Putĕri Teh
m. Tĕmĕnggong
Panjang
Mohd. Arif.
Raja Noteh
m. Sultan Abdu'l-jalil.
Raja Khatijah

NOTE. *Circa* 1760 A.D. there was a Megat Pendia, the last of the family to be a Bĕndahara: he bore the title Paduka Sĕri Maharaja. He was a contemporary of Mĕgat Pintal whom he succeeded in office. The *Mĕgat* tree is doubtful in sevreal places.

Note.

The Sri Nara 'diraja family claim two holders of the office of Orang Kaya Bĕsar, Perak before the Orang Kaya Bĕsar, Kuala Kĕnas its third holder. The first was a son of Sri Nara 'diraja Samah and a grandson of S. N. 'd. Pandak: the second was Orang Kaya Bĕsar Pendek, son of a Tan Dewi.

The Family of the Laksamana.


Nakhoda Hitam, a trader from Pasai, Tok Kuala Bidor, 1st Laksamana * married.
(a) Tok Epok, niece of Tok Sagur of Kampong Gajah.
(b) Putĕri Puasa of Kampar, Perak.
(c) A *Gundek*, whose descendants are at Tanjong Pagar.
Ngah Nusnai, m. Tok Jambu, kĕramat Sungai Durian.
Alang Mindek, m. Laksamana Tun Abu Kĕsama, of Sumatra.
Laksamana Chik, kĕramat Tanjong Medan.
Tok Bangkong kĕramat Sungai Jĕjawi.
Ngah Hassan, Maharaja Lela
Ngah Semah.
Che Uda Kĕchil Tĕkukur.
Tok Puan Puteh Tok Dalam, m. Sultan Ahmadin Shah.
Laksamana Lahab, Tok Bongkok.
Laksamana Tok Rĕjab.
Long Telar m. Tok Muda Wan Abdu'r-rahman.
Che Teh (went to Pontianak.)
Tok Muda. Wan Abdu'r-rahman, Orang Suku L Batu Bahara.
?
Alang Mahmat.
Tok Chu Drahim.
Wan Mahtra m. (a Laksamana Pandak Ibrahim (b) Sultan Ngah Jaffar.
Laksamana Pandak Brahim Tok Pachat.
Alang Duakap.
Long Mayu.
Ngah Majnun, m. Laksamana Tok Janggut
Muhammad Tahar
Tok Tua Muhammad Salleh.
Laksamana Mat Amin (banished to the Seychelles in 1876)
Laksamana Hajia Sulaiman Sungai Durian.
Laksamana Husain, of Ipoh.

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* Vide Notes and Queries, R.A.S., S.B. No. 2 (1885), p. 47:
Also *Misa Mĕlayu*. Floruit, 1765 A.D.

New and Rare Malayan Plants

Series X.

By H. N. Ridley, C.M.G., F.R.S.

During the continuation of my studies of the Malay Peninsula flora I continue to find a good many species which have not been described, or have been for various reasons confused with others. In this series which is a continuation of the preceding ones, it is noteworthy that there are no less than four species quite common in the country but which are nameless, these are *Memecylon Wallichii.* n. sp. confused with *M. amplexicaule,* Roxb. *Morinda elliptica,* n. sp. one of our very commonest trees, confused with *M. citrifolia,* L.: *Fagraea gigantea,* n. sp. confused with *F. fragrans,* Roxb. and *F. speciosa,* Bl. and *Allomorphia malaccensis,* n. sp. confused with *A. exigua,* Bl. In some cases the cause of the error was due to the badness of specimens sent home: often the commoner the species the more seldom is it collected, as the botanist is apt to think it has been frequently sent home and neglects to collect it. In other cases the mistake is due to Botanists not having sufficiently carefully compared the type specimens and the description. Thus both in the case of the *Memecylon* and *Allomorphia,* the types or co-types are preserved and readily accessible and in good condition yet early botanists have confused with the original species totally different plants, and have been followed by later botanists to the present day.

Other new species are due to more recent discoveries in our flora.

STERCULIACEAE.

Sterculia brachycarpa, n. sp.

A tree 50-60 feet tall, stem 8-12 in. through. Leaves chartaceous, dull, deep green, elliptic or obovate-elliptic abruptly acuminate, base blunt or shortly narrowed, glabrous above except the red pubescent midrib, beneath midrib and nerves 9 pairs and reticulations distinctly elevate and covered with stellate hairs, red on the midrib, 6-11 in. long and 3.5-5.5 in. wide, petiole 1.5 to 2 in. long, hairy. Racemes 3-3.5 in. long, slender dense, dark red velvety. Pedicels 25 in. long, red, velvety. Sepals oblong lanceolate narrowed a little to tips, densely hairy 2 in. long. Andraecium half as long glabrous, anthers 7. Female flowers not seen. Carpels 3-4 ovate shortly pointed 1.5-2 in. long and as wide, densely velvety red. Seed 2 to a carpel, oblong .75 in. long, black.

SELANGOR, Sempang mines. (Ridley 15635). PERAK, Batang Padang district 300 to 500 ft. (*Kunstler* 7972).

This has been confused with *S. rubiginosa*, Vent., but is very distinct in its much larger leaves, much longer petioles, broader sepals, and short, broad 2 seeded carpels. It is also much less hairy and the pedicels much shorter and the flowers are in a simple raceme.

MYRTACEAE.

Eugenia formosa, Wallich. In the Materials for a Flora of the Malay Peninsula, King gives this species as occurring in Perak, the only specimens however, so labelled by him that I have seen are certainly the much smaller plant, *E. pseudo-formosa.*

E. formosa, Wallich. is a big tree with axillary red flowers borne below the leaves on the branches while *pseudo-formosa* is a shrub or at most a small straggling tree with white terminal flowers, the venation of the leaves quite different and the thick white corky petiole is very characteristic. The very narrow-leaved form which grows in Penang, by Richmond pool is the *Jambosa lanceolata* of Miquel, it is also my *E. nemoricola* but is I think now only a form of *pseudo-formosa.*

An Eugenia I collected in Selangor at Klang (No. 10200) more nearly resembles Wallich's *formosa* than anything else I have seen from the Malay Peninsula, but as it differs from the type in many respects I prefer to leave it doubtful until further specimens of the plant should be obtained.

Eugenia limnoea, n. sp.

Tree with red flaky bark. Leaves elliptic coriaceous, base very shortly narrowed, tip long, acuminate, blunt, nerves very fine and numerous distinctly raised beneath inarching close to the edge, 5.5 in. long, 2 in. wide, petiole .3-.4 in. long. Panicle terminal 2 in. long, 2.5 in. wide, dense, many flowered on a peduncle 1.5 in. long. Calyx campanulate with a slender pseudo-stalk .2 in. long and as wide; lobes short rounded. Petals free, orbicular glandular .1 in. long. Stamens .3 in. long.

Open low lying, damp country. PROVINCE WELLESLEY, Nibong Tebal (*Ridley* 12783) Krian (*Ridley* 9378). PERAK (*Scortechini*). PENANG, Batu Feringhi (*Ridley* 12576).

This plant has been identified as *E. densiflora,* Duthie by King and what appears to be identical is *E. oblongifolia* var. *robusta,* King, collected in Perak by Scortechini.

It has nothing to do with *E. oblongifolia,* Duthie. *E. limnoea* is allied to *E. densiflora* and appears to replace it in the northern part of the Peninsula. It differs in the flowers being only half as long, and the nerves, nervules and reticulations being very fine and close. The intra-marginal nerve lies close to the edge of the leaf, instead of a long way from it, with a second intramarginal between it and the leaf-edge as in *E. densiflora* the base of the leaf is broader and more rounded and the leaves are generally more ovate. As in *E. densiflora* the midrib is deeply sunk above, prominent beneath, and the whole surface of the leaf beneath is pustular.

Eugenia pauper, n. sp.

A small tree, branches rather slender, bark light reddish. Leaves thinly coriaceous, punctate above, pustulate beneath, elliptic, abruptly cuspidate, base cuneate, nerves 10 to 12 pairs depressed above, elevate beneath inarching to form an intramarginal nerve .1 in. from the edge, midrib channelled above, elevate beneath 5.5 to 6 in. long 2.5 in. wide, petiole .4 in. long, slightly thickened, black. Cymes axillary solitary in each axil .5 to .75 in long with 2 or 3 flowers on the ends of the 2 or 3 branches. Bracts minute at the base of the flowers. Calyx cup-shaped, truncate, suddenly narrowed to a slender pseudo-stalk .1 in. long, pustular. Petals calyptrate.

JOHOR, in Gunong Pulai and Gunong Pantai (*Ridley* 12175 and 4200).

This is nearest to *E. oblata*, Duthie which it exactly resembles in the inflorescence, but the venation and shape of leaves is quite different.

Eugenia cyrtophylloides, n. sp.

A tree with pale reddish bark. Leaves stiffly coriaceous, lanceolate, acute or cuspidate, base narrowed, decurrent on the petiole, black-dotted beneath, nerves very numerous, fine, visible above, very inconspicuous beneath; midrib strongly elevate, 3.5-4 in. long 1-1.5 in. wide, petiole .2 in. Panicle terminal 2 to 3 in. long, peduncle 1-2 in. long, branches 1 in. long terete, thick branchlets, 3 terminal on the branches, ending in 3 sessile flowers. Bracts caducous. Calyx .1 in. long gradually narrowed to a broad base, the lower part cylindric; lobes ovate, short. Corolla calyptrate. Stamens very short and few.

PAHANG. Wray's Camp, Gunong Tahan (*Ridley* 16274).

This belongs to the group of *E. punctulata,* with an urn-shaped calyx and calyptrate corolla and few stamens.

Eugenia Klossii, n. sp.

A tree. Branchlets terete, black. Leaves in distant pairs, elliptic, acuminate, acute, base cuneate, thinly coriaceous, nerves about 20 pairs, elevate beneath, secondary nerves nearly as conspicuous, inarching .1 from the edge, reticulations wide conspicuous beneath, all inconspicuous above 5.5 in. long 2.25 in. 2.5 in. wide, petiole .2 in. long. Panicles 1-2 terminal 3 in. long or less, branches few, short with 1 to 3 terminal flowers. Calyx broad, campanulate .2 in. across, truncate edge recurved, base abruptly narrowed to a slender pseudo stalk .3 in. long. Petals calyptrate. Stamens .4 in. long. Style .5 in. long.

SELANGOR, Rantau Panjang, July, 1914 (*C. B. Kloss*).

This is perhaps most nearly allied to *E. inophylla,* Roxb. but the nerves of the leaves are fewer and the panicle shorter, laxer and fewer flowered.

Eugenia cordifoliata, n. sp.

Branches terete, pale coloured. Leaves elliptic with a short, blunt point, base narrowed, blunt, slightly cordate, membranous, drying blackish above, paler beneath, nerves about 18 pairs nearly invisible above, slightly elevate beneath inarching .1 in. from the edge, 4 in. long 1.5 in. wide, petiole short, thick .1 in. long. Panicle terminal lax, 6 in. long, peduncle 2 in. long, branches angled, the lowest 3 in. long, branchlets crowded at the tip with pear-shaped buds narrowed to a slender pseudo-stalk. Calyx lobes ovate.

PERAK; without locality (*Scortechini*).

This is one of the two quite distinct plants quoted and labelled by King as representing his *Eugenia Swettenhamiana.* The other species which as represented in Herb. Kew, (all I have seen) collected in Larut by Kunstler, No. 7590, is very poor specimen in bad condition, and does not appear to be an *Eugenia* at all. The description of *E. Swettenhamiana* however, applies better to this specimen than to Scortechini's plant which is only in young bud. This latter plant is very distinct from any species I have seen in the rounded, cordate almost peltate leaf-base. It may perhaps be allied to *E. densiflora* but more developed specimens are required before deciding on its affinities.

MELASTOMACEAE.

Melastoma scabrum, n. sp.

Shrub about 5 ft. tall, branchlets sparingly covered with small ovate lanceolate acuminate scales, very varied in size from minute irregular ones to lanceolate subulate ones, very short and appressed, on the leaves almost reduced to slight roughness, rather longer on the petiole. Leaves narrow, lanceolate, subacute, base rounded or shortly cuneate, above scabrid with short thornlike processes, nerves 5 with larger scales, 4-4.75 in. long, 1.25 to 1.50 in. wide; petiole .6 in. long. Flowers as big as those of *M. decemfidum,* pedicels .4 in. long. Calyx .4 in. long, campanulate, sparsely covered with lanceolate, acuminate scales, longest at the top, lobes linear acuminate with scales, long linear subulate outside.

Petals glabrous 1.5 in. long, pale rose pink. Stamens half the length of the petals, unequal, long ones 1.2 in. long. Style rather stout 1 in. long, ovary with long bristle-like hairs on the top.

KEDAH. Lankawi at Burau near Telayah Tujoh, April (*Ridley* 15813).

Osbeckia perakensis, n. sp.

Shrub about 8 feet tall much branched, twigs angled, young parts, petioles, leaves above and the nerves beneath covered with stiff bristly hairs. Leaves elliptic to ovate blunt base, round nerves 5 elevate beneath 1.25 in. long, 75 in. wide, petiole .15 in. long. Flowers 3 to 5 in a terminal head sessile in the terminal pair of leaves, in fruit a short pedicel .1 in. long is developed. Calyx .4 in. long, ovoid eventually semi-oblong, entirely covered with short, stiff bristles and star-shaped whorls of bristles on a distinct pedicel, lobes lanceolate, acuminate, fringed and keeled with simple bristles about 2 in. long. Petals obovate 1 in. long, deep pink-rose. Stamens 10, filaments slender, anthers .3 in. long, shortly acuminate. Style long and stout. Capsule semi-oblong .4 in. long .3 in. through, densely covered with stellate-hairy processes.

PERAK, Taiping Hills on Gunong Hijau at 5,500 ft., first obtained by *Mrs. Bland,* in 1905, later by *J. W. Anderson.*

Perhaps nearest to *O. buxifolia,* Thw. of Ceylon.

OXYSPOREAE.

The sorting out of the species of Oxysporeae of the Malay Peninsula into genera, is, it proves, a somewhat difficult task. I attempted it in vol. 57 of the Journal of the Straits Branch of the Royal Asiatic Society, but in the further light of later discoveries and investigations I find a modification is necessary. The following are the genera as I now propose them:—

Oxyspora, Woody, often tall shrubs with large stiff leaves and big terminal panicles of fairly large flowers. The stamens in the original species of De Candolle are 8 in number but of two forms four long and purple and four alternating shorter and yellow. In the Malay Peninsula we have only one species which exactly agrees with this viz. *O. stellulata,* King, a beautiful tree-like shrub with great panicles of light rose pink flowers. The other species which have the same habit and general structure have all the 8 stamens yellow and the two series almost or quite as long and similar. The capsule in the type species and in some others is long and funnel-shaped, but in *O. microcarpa* it is subglobose and small, and in *O. collina* short and cup-shaped. The following are our species:—

Oxyspora	*stellaulta,* King	
,,	*acutangula,* King	
,,	*hirticalyx,* Ridl.	*Allomorphia hirticalyx,* Ridl.
,,	*Curtisii,* King	
,,	*macrophylla,* Triana.	*Anerincleistus floriebundus,* King
,,	*collina,* Ridl.	*Anerincleistus collinus,* Ridl.
,,	*microcarpa,* Ridl.	*Allomoraphia rosea,* Ridl. Journ. Fed. Mal. States Mus. ii. 14. Not of Trans. Linn. Soc.
,,	*rosea,* Ridl.	*Allomoraphia rosea,* Ridl. Trans. Linn. Soc. ii. iii. 301.
,,	*hispida,* Ridl.	

Allomorphia, Bl. includes the shrublets with small inconspicuous flowers and small elliptic fruits. I excluded from King's species *A. Wrayi* under the genus *Campimia* (a plant allied to *Dreissena*) in the paper above referred to, leaving the type species *A. exigua,* and *A. alata,* Scort. with *A. porphyranthera,* Ridl. *A. exigua,* Jack. Trans. Linn. Soc., xxviii, 74, a native of Penang. It is a low shrublet with white flowers and violet stamens, and is the *A. exigua* var. *minor,* King, but it is quite distinct from the common plant of the South of the Malay Peninsula, a shrub about 6-12 feet tall with greenish flowers in a large panicle. This plant has been confused with it by Clarke, Cogniaux, King, and in fact nearly all botanists since Jack's time. My *Allomorphia capillaris* seems to be a form of *A. exigua,* Bl. It is a native of Perak and the Dindings and differs from the Penang plant in the extremely slender, long branches of the panicle, and is perhaps better classed as a variety of *A. exigua.* The typical plant is confined to Penang where it grows on rocky spots near the waterfall. To this species belongs Wallich's 4048a of his Catalogue (there is no No. 4048 in the herbarium) but 4048b seems distinct in its rather larger flowers and quite round based ovate leaves. It was from Herb. Finlayson without locality. Many of Finlayson's plants are from Siam. I have never seen anything quite like it from Penang or elsewhere.

A. porphyranthera, Ridl. Journ. Roy. As. Soc. Straits Br. 57, p. 39 from Ulu Temengoh resembles *A. exigua,* but the panicle is scurfy and the flowers larger. There remains now the commonest species of all, the *exigua* of the later botanists but not of Blume. King and Cogniaux give as a synonym *Melastoma impuber,* Roxb. Flor. Ind. ii, p. 405, but the description hardly fits this plant to which is also given the Moluccas as a habitat.

In Griffith's Notulae is a description of a *Sonerila bullata* which Cogniaux makes a species of *Allomorphia* under the name *A. bullata.* The description is very incomplete and though some parts of it would fit the common plant which he must have been familiar with and indeed collected, I do not think it can have been what he intended.

I cannot find in fact that this common and conspicuous plant has ever received any name at all. I therefore propose for it the name *Allomorphia malaccensis* as it is particularly common in Malacca and give a description of it.

Allomorphia malaccensis, n. sp.

A tall plant, usually about 6 feet tall and often more with a slender, woody stem, glabrous all over except for a reddish (when dry) meal over the panicle and petioles. Leaves ovate, acuminate, dark green, edge entire, base very shortly cuneate, nerves 5 from base 3 very prominent and 2 outer ones very slender, the transverse nervules conspicuous, elevate, 10 in. long and 6 in. wide, petiole 3-4 inches long. Panicle 6 to 12 inches long and nearly as wide pyramidal, branches lax spreading subwhorled. Flowers umbelled on the ends of the branchlets about 10, or in distant pairs of umbels sessile on the main branches. Flowers small .2 in. long. Bracts lanceolate .1 in. long, caducous. Calyx funnel-shaped, short with 4 short, ovate lobes. Petals smaller, white or greenish. Stamens yellow .1 in. long, anthers acuminate, bases divaricate. Capsule .1 in. long, ovoid narrowed below the dilated calyx limb.

MALACCA, common in woods; NEGRI SEMBILAN, Tampin hill; SELANGOR, Rantau Panjang and Sungei Buloh; PERAK, Gunong Kerbau at 4,000 ft. (*Robinson*). A form with leaves more lanceolate.

Allomorphia subsessilis, Craib of Siam also belongs to this genus, but I should exclude *A. umbellulata,* Hook. fil. of Tenasserim. *A. setosa,* Craib (Siam) *A. hispida,* Kurz and A. Beccariana, Cogn. and *A. Griffithii,* Hook. fil., both of the latter seem to be species of *Phyllagathis.*

Anerincleistus, Korth.

The type of this genus is *A. hirsutus,* Korth. to which I add *A. macranthus,* King, and *A. pauciflorus,* Ridl. They are all small trees or tree-like shrubs with a few umbelled flowers in the axils. The venation of the leaves is quite peculiar. The outer slender pair of nerves rises from the base of the blade, the second pair rises from the midrib as much as an inch from the base in *A. pauciflorus* and occasionally the lowest pair does the same. This nervation occurs also in *Pomatostoma. A. sublepidotus,* King, is very different from the other species in its panicle of many flowers in whorls but the inflorescence is axillary and the venation of the leaves identical, so I retain it in the genus as well as *A. glomerulatus,* King and *A. Beccari, A. cordata,* Stapf, and *A. anisophyllus,* Stapf of Borneo, though some of these may be *Pomatostomas.* I exclude all the rest included under this genus by King and myself formerly.

The section *Coriaceae.* (Journ. Roy. As. Soc. Str. Br. 57, p. 45) forms the genus *Oritrephes,* Ridl. and *A. collinus,* Ridl. is referred to *Oxyspora. A. fruticosus,* Ridl. which seems most nearly allied to *Oritrephes,* but has a fruit more resembling that of a *Sonerila* cannot be fitted into any of these genera and I separate it into a distinct genus under the name of *Perilimnastes.*

Perilimnastes, gen. nov.

Shrub, leaves subcoriaceous lanceolate acuminate, flowers 1-3 subumbellate calyx tube little dilate, lobes subulate. Petals 4 lanceolate acute stamens 8 anthers unequal acuminate base emarginate not appendaged, capsule obconic 4 angled smooth, with 4 inflexed valves, as in *Sonerila.* Species 1, *Anerincleistus fruticosus,* Ridl.

Pahang.

Sonerila patula, n. sp.

A much branched spreading shrub about 12 in. tall, branched from the base, stems hairy with dense appressed hairs. Leaves lanceolate, acute with base acute, appressed hairy all over, subequal nerves 3, lowest leaves biggest 1.75 to 2-5 in. long, .3-.5 in. wide, petiole .1 in. Cymes chiefly solitary axillary in leaf axils and between the branches, peduncle 1 in. Flowers small, white 2-3 in a cyme. Calyx campanulate, lobes lanceolate acute, subulate. Petals triangular acuminte .1 in. Stamens 3, anthers elliptic blunt. Capsule trigonous turbinate, smooth, .2 in. long, pedicel stout .4.

Pahang; in forest at Wray's Camp Gunong Tahan at 3,300 ft. alt.

The leaves of this are occasionally markedly unequal in size. It is allied to *S. albiflora,* Stapf, but its narrow leaves and spreading branches make it unlike anything in the Malay Peninsula.

Sonerila belluta, n. sp.

A delicate unbranched herb. 2-4 in. tall, base creeping quite glabrous. Leaves crowded at the top, narrow, lanceolate, subacute, narrowed to the base spine-toothed on the margin, dark green above, pale beneath .75 to 1.25 in. long .2 in across, nerves pinnate ascending about 4 pairs, petiole very slender, .3 in. long or less. Flowers about 5 cymose on a slender peduncle .75 in. long. Calyx slender cylindric, campanulate teeth short, triangular, green. Petals oblong cuspidate rose-pink .2 in. long. Anthers short, acuminate. Capsule smooth, obconic gradually narrowed to the pedicel .2 in. long, pedicel .1 in.

JOHOR, on rocks on Gunong Banang near Batu Pahat (*Ridley* 11102).

Allied to *S. saxosa* of Penang Hill, but the leaves are much narrower, the fruit smaller and it is quite glabrous.

Sonerila setosa, n. sp.

Stem over 8 in. tall, densely bristly, hairy as are the petioles nerves beneath, and edge of leaf, inflorescence and calyx, slightly woody. Leaves very dissimilar, large one elliptic, oblong, acuminate base narrowed, unequally cordate, sprinkled with coarse hairs above membranous, nerves ascending from the lower third of the midrib, transverse nervules fine, conspicuous, 4.5 to 5 in. long, 1.5-2 in. wide. Petiole 1-1.5; small, leaves orbicular, reniform 1 in. long. Cymes dense, many flowered in all the axils of the small leaves and terminal about an inch long, densely setose, with red bristles. Flowers small, white. Calyx 1 in. long cylindric, campanulate, red. Petals small, linear, oblong, acute, bristly. Stamens 3, anthers oblong obtuse. Capsule campanulate, muricate, bristly .1 in. long, .2 in. wide, narrowed to its peduncle .2 in. long.

PAHANG, on Gunong Tahan (*Ridley* 16036).

Allied to *S. caesia* for a form of which I first mistook it.

Medinilla rubicunda, Bl. was based on Jack's *Melastoma rubicunda* which is Pogonanthera *pulverulenta,* Bl.

No type specimen of Jack's seems to exist but in Wallich's collection No. 4086, is a specimen of *Pogonanthera* collected at Cape Rachado in Malacca (not Penang as Cogniaux gives it) which is queried for *Melastoma rubicunda,* Jack, by Wallich, as also is a *Medinilla* from Silhet. Jack's plant was collected at Singapore. Cogniaux gives *Medinilla rubicunda,* Bl. as a species and compounds it of the Sylhet plant *M. erythrophylla,* Lindl. (*Melastoma erythrophylla,* Wall. Cat. 4085) and Jack's species. *M. rubicunda,* Bl. therefore goes out as a synonym of *Pogonanthera pulverulenta* and the Sylhet plant which does not occur in the Malay Peninsula, retains the name of *M. erythrophylla,* Lindl.

Medinilla venusta, King is apparently a somewhat variable plant. King described it as having 8 stamens and acute petals. His type specimens in the Herb. Kew have 8 stamens but I would not call the petals acute, they seem to be rounded. Stapf in Kew Bulletin, 1906, p. 73 describes under *M. chionantha,* a plant which was sent from Perak by Curtis and cultivated at Kew. It has round petals and 10 stamens, but except for the latter character it is quite like King's, *M. venusta* from Perak, I conclude it is a variety.

Memecylon Cantleyi, n. sp.

A large shrub, bark of branches pale. Leaves thin, coriaceous drying greenish, elliptic, acuminate to both ends equally; nerves 5 pairs, very faint on both sides, 3.5-4.5 in. long, 2-2.3 in. wide, petiole 4 in. long. Flowers few in axillary simple cymes .5 in. long. Peduncle .15 to .2 in. long, rather thick pedicels half as long. Calyx wide cupped, rather flat when expanded, narrowed to base, truncate or very minutely dentate .1 in. long, .15 in. wide, white with a pale violet tinge. Petals (cuspidate in bud) pale blue subquadrate shortly apiculate below apiculate above, nearly .3 in. across. Stamens deep violet, ovary with 12 ovules crowned by an elongate punctate style. Fruit not seen (there is some in a capsule with one of Maingay's specimens (which are all in flower but being detached it is probable that they do not belong).

SINGAPORE; (Cantley); Garden jungle (*Ridley* 13012). MALACCA (Maingay).

This was named *M. laevigatum,* Clarke and *M. garcinoides* by King in Herb. Kew, but it seems to me abundantly distinct, not only in the longer, narrower leaves but in the much larger flower. I have taken part of the description from Maingay's mss. notes. He adds that it is a remarkably elegant, large shrub in flower.

Memecylon longifolium, n. sp.

Tree, branches with grey bark. Leaves elliptic, lanceolate, long, cuspidate tip blunt, narrowed to the rounded base nerves about 20 pairs, the secondary ones being nearly as prominent as the primary ones, but all slender and not prominent inarching 4 in. from the margin, thinly coriaceous, light green when dry, 7-8 in. long, 2-2.25 in. wide, petiole very short .05 or less. Flowers in very short .2 in. axillary sessile fascicles about 10 in. a fascicle, very small pink, pedicels .05. Calyx at first subpyriform with four short rounded lobes eventually campanulate, truncate .1 in. long. Petals ovate triangular subobtuse.

Dindings, Lumut (Ridley 9475). Referred by King to *M. amplexicaule,* Roxb., but the leaves are not cordate and the flowers much smaller. It is certainly allied to this species as also to *heteropleurum.*

Memecylon gracilipes, n. sp.

Small tree with slender, grey twigs, slightly winged below the nodes. Leaves thinly coriaceous drying green, almost sessile ovate, cuspidate base round, midrib beneath elevate as are 4-5 pairs of conspicuous nerves depressed above inarching .25 in. from the edge 2.5 to 3 in. long, 1.5 in. wide. Cymes very slender 1-1.5 in. long, lower ones once branched, upper ones simple, peduncle very slender .5 in. long, pedicels .2 in. long, very slender. Flowers umbelled, 3. Calyx .1 in. long, the base subglobose, the limb wide saucer-shaped .2 in. across, teeth minute, petals ovate, acute .1 in. Style rather long. Fruit globose .5 in. through on a pedicel .45 in. long. Seed globose testa brown shining.

PERAK, Waterloo Estate 1,000 ft. (*Curtis* 1295).

The only plant at all like this is *M. arnottianum,* Thw. of Ceylon but that has 3-nerved leaves. The petals appear to have been white, the calyx tinted red.

M. terminale, Dalz. of Southern India also resembles it but shows no nerves.

Memecylon floridum, n. sp.

Tree 40 to 50 feet tall, branches subterete, fuscous. Leaves thin, coriaceous, lanceolate acuminate, nearly equally to both ends, tip blunt, nerves very faint on both sides, a faint intramarginal nerve along each edge rising from base, laterals about 7 pairs 3-4 in. long by a 125 wide, petiole winged nearly to base .3 in. long. Cymes 1-3 in the axils of each leaf, peduncles thick .3 in. long, bearing an umbel of three or more flowers on thick .1 in. pedicels, with lanceolate, blunt bracts at base. Calyx base cylindric obconic limb broad, in bud widely cupular, in flower .1 across. Petals ovate, in bud conic blunt. Style long and stout.

PERAK, Larut 500-1,000 ft. Nov. 1882 (*Kunstler* 3551).

I cannot fit this plant into any described species, the larger flowers, and short, dense cymes and the long acuminate leaves showing a distinct pair of intramarginal nerves, seem to keep it distinct from anything.

Memecylon malaccense, Clarke mss.

M. amabile, Bedd. var. *malaccensis,* Clarke Flor. Brit. Ind. ii, 555.

Probably a shrub, with slender, grey angled and faintly winged branches. Leaves ovate, lanceolate, base rounded tip acuminate, blunt, fleshy coriaceous opaque, drying brown above reddish beneath with no visible nerves on either surface, 2-2.75 by 1-1.25 in. wide, sessile or with a minute petiole. Cymes very short, .3 in. long, peduncle .15 or much shorter. Flowers 4-5 umbelled on the end of the peduncle. Calyx cup-shaped, truncate with a broad base, fleshy (drying black). Petals forming a blunt cone in bud, ovate.

MALACCA (*Maingay* 2531, 2528) "Nepus Kolite" (Nipis Kulit).

The specimens of this are very poor, and King puts it under the doubtful species. In the branches and form of the flowers it suggests an affinity with *M. fruticosa* but its opaque nerveless small leaves make it quite distinct. I cannot place it under any of our known species.

Memecylon laxiflorum, Wall. Cat. 4472. A large shrub with grey branches. Leaves stiffly coriaceous ovate, obtuse or acuminate, base round, nerves very faint and slender about 8 pairs when dry, dark above, reddish below 4-4.5 in. long, 2-3 in. across, petiole .4-.5 in. long, stout. Cymes 1-4 from axil of fallen leaves. Peduncle .3 in. long bearing a number of cymules on short pedicels .1 in. long with longer, slender pedicels .2 in. long. Calyx campanulate, base hemispheric, limb larger, truncate. Petals 8, short, subacute, blue. Fruit globose with very little trace of the calyx limb, .25 in. through on a cyme 2.5 in. long.

SINGAPORE (*Wallich* 4472). JOHOR; Minyak Buku (*Ridley* 11092) and Pinerong (*Ridley* 15396). PENANG; Beach behind Muka Head (*Curtis* 723).

This seashore shrub differs from *M. oleaefolium,* Bl. in its stiffer, round leaves with a longer petiole and fewer pedicels with shorter cymes. The nerves though slender and not elevate are quite visible, they inarch into a lateral nerve close to the margin.

Memecylon amplexicaule, Roxb. Fl. Ind. ii. p. 260.

A specimen of this plant so labelled by Roxburgh occurs in the British Museum, and is certainly *M. microstomum,* Clarke. Roxburgh's description agrees perfectly with the specimen and does not at all agree with the plants put under this name by Wight, Clarke, King or other botanists. Roxburgh states that his species is veinless which is the case in *microstomum* but the species named *amplexicaule* by other botanists has peculiarly strongly developed veins on the leaf. Wight's plant so named in Icones 279, is not Roxburgh's and may be *M. Wightii,* Thw. of Ceylon. *M. depressum,* Benth. Wall. Cat. 4101 was never described. There are 2 or three plants mixed under the number 4101 and it is impossible to guess which Bentham intended, nearly all Wallich's specimens labelled *M. amplexicaule,* Roxb. are the correct plant. His only sheet of the Penang plant *M. amplexicaule,* King, etc.) is labelled doubtfully as *M. grande,* Retz. which it is not. There therefore appears to be no name for this plant, and as King's description is apparently mixed, I separate and describe this plant under the name of *M. Wallichii.* A small tree, branchlets 4-angled, leaves lanceolate acuminate or ovate, base minutely cordate, coriaceous, nerves about 18 pairs inarching .1-.15 in. within the margin, very nearly sessile the thick petiole concealed by the lobes of the leaf at the base, 7-8 in. long, 2.75-3 in. wide. Cyme axillary peduncle .1 stout. Flowers numerous, crowded. Calyx cup-shaped, base blunt, edge truncate, not lobed but minutely-irregular, pedicel stout nearly as long .1 in. long. Petals white or pinkish, broad, ovate, blunt. Style rather stout, short. Fruit black, globose .2 in. through.

M. amplexicaule, King and others not of Roxburgh.

PENANG; (*Wallich* 4101C.) Experimental Nursery; (*Curtis* 965 and 457); Moniot's Road (*Ridley*). PERAK; (*Scortechini* 231); Larut, 800-1,000 ft. (*Kunstler, M. heteropleurum* var. *olivaceum,* King! and 3058 Kunstler), Waterloo (Curtis 1294).

The Penang plants have long, narrow lanceolate leaves, while those of Perak have shorter, broader, ovate ones, but there are intermediate forms. Generally speaking the plant resembles *M. heteropleurum,* Miq. but that has the leaves very shortly cuneate, never rounded or cordate and the flowers about half as big.

M. costatum, Miq. Verh. Ned. Inst. 1850, p. 29 is recorded by King from Perak (Kunstler 10785); I have not seen this specimen and there is no specimen of Miquel's species from the Peninsula at Kew. King's description differs from Miquel's in "base of leaves rounded or slightly narrowed, not cordate" whereas Miquel's species had cordate leaves, and in "flowers in axillary glomeruli" instead of widely spreading panicled cymes. So it seems clear that King's *M. costatum* is not Miquel's.

RUBIACEAE.

Uncaria parviflora, n. sp.

Uncaria lanosa var. *parviflora,* Ridl. Journ. Roy. As. Soc. Str. Br. lix, p. 109.

Climber with 4 angled stems, .2 in. through, sparsely hairy, branches more densely hairy with short rough hairs. Leaves lanceolate, acuminate, base broad, membranous, scabrid hairy above, beneath velvety hairy; nerves about 7 pairs, slender elevate beneath, 2.75 in. long, 1.25 in. wide; petiole .1 in. Stipules linear acuminate, bifid, hairy .1 is. long. Peduncles rather slender narrowed upwards, sparsely hairy 1 in. long. Peduncles rather slender, narrowed upwards, sparsely hairy 1. in. long. Heads globose .5 in. through. Calyx sessile, silky, obconic, very small with short oblong obtuse lobes about half the length, glabrous within. Corolla sparsely silky, hairy; tube very slender .2 in. lobes oblong ovate blunt, glabrous within.

PERLIS, Chupeng in open country, forming large bushes (*Ridley* 15019).

On further examination I find that this plant is specifically distinct from *U. lanosa.*

Coptosapelta parviflora, n. sp.

Lofty climber, nearly glabrous. Leaves elliptic rather long, sharply acuminate, base cuneate, dark shining green, glabrous except for a few rather long hairs on the midrib, nerves 4 prs. fine, reticulations visible on both sides, 3-5 in. long 1.5 in. wide; petiole white-hairy .3-.4 in. Stipules triangular acute, .1 in. long. Panicle terminal 2.5 in. long in flower, with thin branches, lax, sparsely white-hairy. Bracts narrow, linear, lanceolate acuminate .1 in. long. Flowers green. Pedicels white-hairy .1 in. long. Calyx .1 in. obconic ridged, white-hairy, limb campanulate about as long with 5 ovate lobes. Corolla-tube cylindric .2 in. long, white, silky, lobes linear, oblong, nearly as long, glabrous keeled, mouth of tube white-hairy. Stamens hairy. Fruit panicle 3 in. long 6 in. across. Branches angled, nearly glabrous. Fruit .2 in. long, globular, ovoid.

SINGAPORE, Bukit Timah (*Ridley* 14117). PENANG; (Curtis) BORNEO; Sarawak (*Beccari* 2518).

This species differs in being subglabrous and having the flowers much smaller in a short terminal panicle. The fruit is also smaller and quite glabrous.

Argostemma rugosum, n. sp.

Stem fleshy, branched, erect 4 inches or more, transversely rugose as are the petioles and midrib, hairy. Leaves very unequal, larger one oblong or elliptic, shortly acute, base rounded or cuneate, unequal glabrous above, nerves hairy beneath 10-11 prs., reticulations conspicuous 2-3 in. long, 1-1.5 in. long, petiole .2 in. long. Small leaf, lanceolate, subacute .2 in. long. Stipules lanceolate acute, as long. Peduncle 1 in. or less with an umbel of several large flowers on pedicels .5-75 in. long. Bracts at base of umbel lanceolate. Calyx-tube short, campanulate, with lanceolate acute lobes, much longer, .2 in. long. Corolla .8 in. across lobes oblong, lanceolate subacute. Staminal column shorter curved.

SELANGOR; Gunong Mengkuang 3,600 ft. (*Kloss*).

I took this at first for an abnormal specimen or variety of *A. spinulosum,* Clarke, but in view of the greater size of calyx lobes and corolla, which is longer, not shorter than the staminal column, I conclude it is a distinct species.

Argostemma nervosum, n. sp.

Stem rather woody ascending for 8 inches, dense, hairy, rather stout. Leaves very unequal, large ones subsessile, oblong, oblanceolate, abruptly acute, narrowed to the unequal rounded base, membranous above with pale hairs scattered sparsely and thicker on midrib; nerves 11-12 prs., conspicuous both sides much elevate parallel and hairy beneath, reticulations hardly visible 2.5 in. long, 1.25 in. wide, small leaf, sessile, ovate acute sessile .5 in. long 13 in. wide edges hairy.

Stipules similar smaller. Cymes terminal and in upper axils densely hairy up to calyx. Peduncle .25 in. long, pedicels 1.5 in. long. Flowers in pairs. Calyx campanulate, dense, hairy lobes short, toothlike. Corolla .6 in. across lobes narrow, lanceolate, acuminate, hairy on the back. Staminal cone slightly longer. Fruit globose campanulate .2 in. long, hairy.

SELANGOR, Sempang, Mines (*Ridley* 15658).

Near *A. elatostemma,* Hook. fil., but a much stouter plant very hairy all over, with stiffer leaves, larger, sessile, and strongly nerved but not reticulate. Cymes with short peduncle, long pedicels and flowers hairy.

Argostemma grandiflora, n. sp.

Ascending herb. 5 in. tall, glabrous, entirely except a little hairiness on stem. Leaves unequal, larger ones lanceolate, fleshy or ovate lanceolate, narrowed to both ends, nerves invisible .-1.4 in. long, .3-.4 in. wide; petiole slender .1, small leaves ovate lanceolate .2 in. long, .1 in. wide. Stipules similar. Flowers solitary, terminal, and in upper axils peduncle 1.5 in. long with 2 pairs of bracts, one obcuneate toothed and .2 in. long and one smaller, three-toothed, ovate .1 in. long above. Calyx tube short, obconic, lobes narrow, linear, lanceolate acuminate .15 in., glabrous. Corolla .7 in. across, lobes ovate acute .2 in. across. Staminal column shorter .2 in. long, thick.

PERAK; Gunong Kerbau 4,500 ft. (*Robinson*) a single specimen.

I took this for an abnormally glabrous specimen of *A. involucratum,* Hemsl., but it differs so markedly in its nerveless fleshy leaves, the curious involucral bracts, all toothed conspicuously, and the large broad lobed corolla that it must be considered distinct.

Argostemma trichanthum, Ridl.

Whole plant 4 inches long, stem ascending, hairy, with curled viscid hairs. Leaves very unequal, larger one lanceolate, subacutely acuminate narrowed or not to unequally cordate base. membranous. glabrous above. sparsely hairy beneath. more so on the midrib and on the seven pairs of slender nerves 1.75 in. long, to 3 in. long, 1-1.5 in. wide; petiole hairy .1, small leaf ovate, acute, base round .12 in. long. Stipules resembling the small leaf. Cymes several in the uppermost axils 1.5-2 in. long, hairy all over, peduncle .5 in. and branches several, slender. Bracts oblong, lanceolate .1 in. long, glabrous. Calyx campanulate, lobes short, ovate. triangular, hairy. Corolla lobes narrow, lanceolate, acuminate, backs hairy, .2 in.

long. Stamens nearly as long, acuminate. Fruit campanulate, hairy.

SELANGOR, Ulu Langat (*Kloss*).

The leaves appear to have a white longitudinal fascia as in *A. elatostemma* and other species.

Nearest to *elatostemma,* but the leaves acuminate, lanceolate, the flowers more numerous and smaller and the whole inflorescence more hairy.

Mussaenda spectabilis, n. sp.

Shrub. Branches hairy with many linear lenticels. Leaves chartaceous ovate—oblong base round abruptly short, acute cuspidate, above glabrous except the midrib, beneath thickly sprinkled with short hairs, midrib and nerves about 10, slender rather faint pairs, appressed-hairy, 5-6 in. long, 2.25-2.75 in. wide; petiole 1.25. Stipules triangular, setaceous densely hairy; Cymes terminal several, densely hairy, peduncles about 1 in. long, generally two branched. Bracts lanceolate acuminate, hairy. Calyx-lobes lanceolate acuminate, subfalcate 1 in. long unequal, hairy .1 in. across or less. Corolla tube densely hairy 1 in. long, limb 2.25 across, lobes 1.1 long .5 inches across pubescent on the back, puberulous velvety above, the mouth with short dense yellow hairs running from the centre up to the midrib of each petal.

PAHANG; Pulau Tioman (*C. B. Kloss,* June, 1916).

A very fine species allied to *M. mutabilis* var. *hirsuta* but the flowers are considerably larger and much more hairy and the calyx lobes are very much longer and as long as the corolla tube. The leaves though usually round at the base are occasionally narrowed.

Urophyllum coriaceum, n. sp.

Small branched tree with white corky bark. Leaves coriaceous elliptic or oblong acuminate, cuspidate, base very shortly narrowed quite glabrous; nerves about 12 pairs, elevate as are the reticulations on both sides; midrib depressed above 3.5-6 inches long 1.5-2 in. wide; petiole .5 in. long. Stipules short lanceolate acuminate blunt. Cymes few-flowered about .4 in. long including .2 in. long peduncles. Calyx widely cupular .05 in. long, .1 in. wide truncate, entire. Corolla .15 in. long coriaceous, tube very short, lobes 5, splitting nearly to the base, acute, hairy within at the mouth; Anthers narrow, linear, acute. Style very short, stigma fusiform.

PAHANG; Gunong Tahan at Wray's Camp, (*Ridley* 16247, 16070).

This shrub or small tree had much the habit of an elder-bush with stout branches from the base covered with white corky bark. It was about 8 or 10 ft. tall. In life the leaves and flowers suggested those of *U. glabrum* but they are much more coriaceous, the flowers larger and rigid, the edges of the petals run down nearly the whole length of the corolla as ridges, and are separate or nearly separate for most of the way. The whole plant is almost completely glabrous.

Randia (Ceriscus) oocarpa, n. sp.

Shrub. Branchlets slender, long, white-barked, spines on the lower part only, 1 in. or less, terminal branchlets short, distant 1 in. long, knotted. Leaves membranous ovate to oblong, obtuse or subacute base narrowed or lanceolate 1-3.5 in. long, .5-125 in. across; nerves about 4 pairs, slender elevate beneath, thickly sprinkled by short hairs on both sides, especially hairy on midrib both sides and nerves, bigger leaves becoming glabrescent; petiole hairy .1 or less. Stipules ovate, acuminate keeled. Flowers 1-2 terminal, white, becoming orange; pedicel .05 in. hairy. Calyx .3 in densely rather long hairy lobes, ovate, less than half as long, in flower. Corolla as long as calyx-tube, short, thick, hairy, white becoming orange-coloured. Fruit obovoid 2 in. long, 1.75 in. wide, rough when dry, glabrous.

PAHANG; Pekan (*Ridley*). PERAK; Relau Tujor (*Wray* 2599a); Taiping (*Scortechini*). KEDAH; Lankawi, Kwah (*Curtis*); Burau (*Ridley* 15016). PERLIS; Kanga (*Ridley* 15007).

This plant was identified by King with *Randia Dumetorum* Lam., a native of India, and following the Flora of British India he gives as synonyms a large number of what I should consider distinct species. The nearest species to this is *R. stipulosa*, Miq. of Java, which he gives as a synonym, but that has smaller leaves and larger flowers with larger calyx lobes. From the true *R. dumetorum* of Lamark, this species differs in the thinner, larger leaves, and smaller flowers, more lax habit and smaller and scantier thorns.

Randia incurva, n. sp.

A tree. Leaves thinly coriaceous, elliptic, shortly acuminate, base cuneate, nerves 9 pairs, the lowest very fine from the base, the others widely inarching .2-.4 in. from the edge, reticulations wide 7.5-8 in. long, 2.75-3.25 in. wide; petiole .3 in. long, stipules triangular mucronate. Cymes panicled terminal 2.5 in. long and wide, peduncle .3 in. long and like the branches, woody. Flowers numerous, fragrant. Pedicels .1-.2 in. long, pubescent. Bracts small, ovate. Calyx campanulate, pubescent .2 in long with very short teeth. Corolla cylindric, rather narrow .3 in. long, lobes oblong rounded .1 in. long. Anthers linear. Stigma cylindric, thick, shorter than lobes.

PENANG; West Hill at 1,000 ft. (*Curtis* No. 818).

This is one of the species included under *R. Forbesii,* King, by King and Gamble in the materials, but it is utterly different from the other plants on which the species is based. It is an unarmed tree, *Forbesii* a climber. The foliage is quite different, that of *Forbesii* being coriaceous with only the primary nerves visible, those of *R. incurva* are thin, large with very conspicuous, inarching veins. The calyx of *Forbesii* is cylindric truncate, the corolla tube nearly twice as long, the lobes narrower and smaller.

R. longiflora, Lam. Dict. ii. p. 227. Ill. t. 156 f. 3.

Though there can be little doubt as to which species Lamarck intended, there has been a great mixture made under this name in the Flora of British India. This appears to have been due in the first instance to De Candolle, who thought that *Posoqueria longiflora,* Roxb. was Lamarck's *R. longiflora.* To this species Hooker in Flora of British India has added (1) *R. scandens,* Dec. *Tocoyena scandens,* Bl. and (2) *Gardenia patula,* Horsfield, both utterly different plants. *R. longiflora,* Lam. is the thorny, half scandent bush, so common in the tidal swamps of the Malay Peninsula. It occurs also in Borneo, and is absent entirely from India. The Indian plant is totally different, and does not seem to have any name. The only evidence of its occurring in the Malay Peninsula is Wallich's specimen numbered 8284 D, collected by him in Singapore in 1822.

Randia Roxburghii, n. sp.

A glabrous, woody climber with numerous recurved spines .5 in. long in pairs at each node, bark whitish. Leaves coriaceous, elliptic, shortly acuminate, blunt, base cuneate, nerves 4 pairs depressed above, raised beneath slender, secondary nerves and reticulations invisible, 4 in. long, 1.75 in. 1.8 in. wide; petiole .2 in. long. Cymes nearly all axillary lax, peduncle .3 in. long branches spreading few about as long. Bracts small, ovate, persistent. Pedicel nearly .1 in. long. Calyx urn-shaped, narrowed at the base with triangular, short teeth .2 in. long. Corolla tube 1 in. long, cylindric, lobes broad, oblong, subacute .4 in. long, .1 in. wide. Fruit globose, ribbed, about 5 in. long, crowned with the remains of the calyx.

SINGAPORE; (*Wallich* 8284 D), (Lobb). *Chittagong.* ASSAM (Jenkins). *Silhet* (Wallich 8284 B).

It is quite possible that Wallich's plant came from Chittagong and another specimen in Herb. Hooker is labelled "Chittagong (Wallich) 8284 D." but there is a ticket on the specimen in Wallich's own herbarium saying *he got* it in Singapore. It has not been met with in the Peninsula since.

Gardenia elata, n. sp.

A very big tree nearly 100 ft. tall. Leaves subcoriaceous oblanceolate, apiculate, base cuneate, nerves 17 pairs, subhorizontal, with transverse nervules all elevate beneath, 9 in. long, 3.5 in. wide, petiole 1 in. long. Stipules connate in a tube with a bifid unequal limb, .2 in long. Flowers solitary, terminal subsessile. Calyx tube funnel-shaped .3 in, limb spathaceous prolonged on one side into an oblong lobe .5 in. long. Corolla tube 3 in. long, lobes oblong spathulate tip rounded, orange color. Stigma thick fusiform clavate.

SINGAPORE, Bukit Timah (*Ridley* 11332). PERAK, Selama (*Wray* 4266). BORNEO, Baram (*Hose* 229).

Entirely glabrous except the very young leaves which are pubescent.

Petunga conifera, n. sp.

A slender tree about 30 ft. with few spreading horizontal branches 4-angled. Leaves coriaceous, dark green, elliptic cuspidate, shortly narrowed at the base, nerves prominent beneath 7-9 pairs, nervules very fine and inconspicuous, 6-9 in. long, 3-5 in. wide, petiole thick .5 in. Raceme dense .5 in., few flowered, cone-like, 4-angled heads. Bracts ovate, coriaceous ciliate along the edge, nearly as long as sessile flowers. Calyx obconic with 5 short broad triangular lobes densely woolly hairy at tips .15. Corolla .15 in. long tube short, thick glabrous outside, pubescent within, lobes oblong blunt as long as the tube, hairy at tips. Anthers linear, sessile on the mouth of tube. Style as long as calyx lobes, stigmas 2, thick linear blunt, all pubescent.

Apparently rare. SINGAPORE in the Garden Jungle. (*Ridley* 10722).

Timonius hirsutus, n. sp.

Small shrub with slender purplish brown twigs, young parts with long white hairs. Leaves membranous on the ends of bare shoots, lanceolate acuminate, base rounded, nerves 7 prs. elevate beneath sparsely short-hairy on nerves above, and sparsely hairy beneath, nerves and midrib with dense appressed hairs 3-4 in. long, .5-1.25 in. wide, petiole very hairy .12 in. long. Stipules triangular elongate, acuminate, setaceous, glabrous .1 in. Cymes hairy axillary in the uppermost axils .6 in. long. Peduncle slender .25 in. long. Cymes in pairs 3-flowered, outer flowers, with pedicel .1 in. long, central flower sessile. Calyx very small, campanulate, lobes linear as long as tube. Corolla white .25 in. long, tube very slender, lobes very short oblong, blunt, white, silky all over but the back of the lobes long-bearded.

Curtis collected this without fruit or flowers in the Lankawi Islands (No. 2544) I made a note on it in Journ. Roy. As. Soc. Str. Br. 59, p. 115. Now good flowering specimens come from Pulau Dayang Bunting collected by H. C. Robinson, No. 6229 of his collection labelled "small bush flowers, white." The hairs on this plant are described by me as red, the foliage was however, older. In Robinson's specimens the leaves are mostly hardly developed and the hairs are white and silky.

Coffea viridiflora, n. sp.

Shrub glabrous 12-14 ft. tall. Leaves fleshy, membranous elliptic, oblong, cuspidate (cusp blunt 1 in. long) nerves 8-9 pairs, slender ascending, midrib channelled above, base cuneate decurrent on the channelled petiole, 8 in. long, 3 in. wide; petiole rather thick 75 in. Stipules caducous. Flowers in axillary heads in each leaf axil, sessile or shortly peduncled, few green. Calyces connate in a head sessile gummy. Corolla .2 in. long, tube cylindric, lobes linear acuminate 4, contort half as long. Anthers shortly projecting, rather large. Fruit globose .3 in. through crowned with circular calyx scar. Seeds 2 semi-oblong, back round, front flat .2 in. long.

SELANGOR; Batu Caves (*Ridley*). PERAK; Waterloo (*Curtis* 1304).

Ixora montana, n. sp.

A shrub with pale bark. Leaves coriaceous, oblong ovate base round, nerves over 12 pairs, strongly elevate beneath as are the reticulations, over 6 in. long, 3.5 in. wide, petiole .2 in. Corymb dense, many-flowered, 4 in. across, peduncle 6 in. long with a pair of sessile ovate acuminate leaves 2.5 in. long, 1 in. wide at base. Bracts linear, acuminate. Branches hairy. Calyx glabrous, tubes subglobose small with shorter ovate acute teeth. Corolla light red, tube .75 in. long, lobes broad, oblong, rounded.

PERAK, Gunong Kerbau (*Aniff*).

The specimen is very imperfect but it seems quite distinct from *I. opaca* which is the nearest thing to it.

Ixora grandifolia, Zoll & Moritz Verz. 65.

Under this name Hooker and King have collected a variety of species forming a group of species rather than a single one. Among the plants thus included by King are *Ixora grandifolia,* Zoll. and Mor. a big tree with white flowers, of which he describes a variety *gigantea,* but I see no difference between this variety and his type-species (which is not Zollinger's plant) and is described below. Next comes his variety *coriacea* in which following Hooker he includes at least two distinct species, one the comparatively thin leaved plant with rose-pink flowers, the *I. coriacea* of Brown in Wallich's Herbarium No. 6151 the other a thick leaved plant with dense corymbs of white flowers collected by Griffith in Malacca. All the species want describing.

Ixora coriacea, Br. in Wall. Cat. 6151.

Apparently a tree. Leaves coriaceous, elliptic acuminate acute base shortly narrowed and blunt, nerves about 12 pairs sunk above, elevate beneath, 10 in. long, 3.5 in. wide; petiole thick .5 in. long. Stipules broad, coriaceous, ovate truncate rounded, mucronate. Cyme panicles 3 terminal, peduncles 2.5 -3 in. long, panicle 4 in. across, 3 in. long, branches puberulous. Calyx tubular, urn-shaped .05 in. with very short teeth. Corolla rose-pink, tube slender, .4 in. long, lobes oblong deflexed. Style fairly long, slightly clubbed. Fruit bilobed 2-seeded .25 in. through.

PENANG (and SINGAPORE) Wallich 6151; Phillips and I believe that *I. elliptica,* Br. PENANG, Wallich 6153 is the same species.

Ixora crassifolia, n. sp.

Tree. Leaves very thick coriaceous and smooth, shining, elliptic lanceolate, blunt base, narrowed, nerves about 10 pairs, often deep-sunk above, elevate beneath, midrib stout, 8-9 in. long, 3-3.5 in. wide, petiole thick .25 in. Stipules broad, triangular mucronate, Inflorescence of several stout branches, thickly short, hairy with dense umbellate cymes of white flowers crowded together 3 inches long, 4 in. wide primary peduncles very short. Calyx subcampanulate with small rounded lobes. Corolla .4 in. long, tube slender, lobes narrow nearly as long, white, base red.

MALACCA, Ayer Panas heavy jungle (*Griffith*).

All the specimens are in bud or fruit.

Ixora patens, n. sp.

Leaves elliptic, lanceolate, acuminate, acute, base narrowed, thin coriaceous, nerves fine about 18 pairs, secondaries nearly as prominent, midrib elevate 7 in. long, 2 in. wide, petiole .25 in. long. Corymb spreading, 5 branches, 2 lower ones with peduncle 2 in. long, spreading horizontally, the upper 3.1 in. from them, forming an umbel with small lanceolate bracts at base, peduncles one inch, all the cymes of several branches about one inch long, many-flowered, branchlets very short. Flowers sessile. Calyx suburceolate with very small teeth. Corolla tubes slender .3, lobes half as long, rounded at tip.

SELANGOR; Gunong Mengkuang Lebar 5,000 ft. (*Robinson*).

I am not sure of the color of this but it seems to have been red. All this set differs entirely from King's *grandifolia* and his variety *arborescens,* in having the base of the leaf narrowed to a point. The variety *arborescens,* Hook. fil. has as a Synonym Hasskarl's. *I. arborescens,* Retzia I. p. 22 which is a distinct species. *I. gigantea. Ixora grandifolia,* Hook. fil. and King not of Zollinger.

Tree to 60 to 80 feet tall, 15-20 in. through with spreading branches. Leaves very coriaceous, elliptic, tip round, base round, 10 in. long, 5.5 in. wide or less, nerves prominent about 6 pairs, petiole thick 1 in. long. Panicles 2 lax, peduncle 2 in. or more long, pubescent as are branches. Corymb 2 in. long and wide. Flowers shortly pedicelled, Calyx campanulate, 5- toothed. Corolla not seen. Fruit globose, pea-shaped, .15 in. through, bright red.

PERAK, Larut, (*Kunstler* 5609, 5466; Wray 2973).

The leaves of the true plant of Zollinger are less coriaceous much smaller and narrowed at the base, the inflorescence much smaller. In fruit the inflorescence of *gigantea* becomes stout and woody and is as much as 8 inches long, the peduncle nearly .25 in. thick.

Ixora fluminalis, n. sp. *I. grandifolia* var. *arborescens,* King not *I. arborescens.* Hassk.

A tidal river tree, leaves coriaceous, stiff, oblong blunt, base rounded sometimes nearly cordate 4-6 or 7 in. long, 2-4 in. wide, nerves 10 pairs, prominent, midrib prominent beneath; petiole thick .25 in. Panicles 3, central one rebranched peduncle 2 in. long, whole inflorescence 5 in. long, 6 in. across, puberulous. Bracts at base ovate, acuminate .25 in. long. Flowers pedicelled, yellow. Calyx urceolate shortly 5-toothed. Corolla tube cylindric, slender, .24 in. lobes oblong, rounded .12 in., reflexed. Stigma bifid. Fruit globose pea-shaped, in a much thickened and enlarged corymb.

Tidal rivers, Common. JOHOR, Kota Tinggi (*Ridley* 4165). MALACCA (Griffith, *Cuming* 2332, *Maingay* 1297). PERAK, Goping (*Kunstler*). KEDAH, Lankawi, Gunong Raya, (*Aniff*).

The true *arborescens* of Hasskarl, of which there is a cotype in Herb. Kew, has thinner leaves narrowed at the base. The inflorescence more slender and lax. Calyx lobes larger. Corolla more slender with narrower lobes and said to be white. In fruit the panicle though longer is not so thick as in *I. fluminalis.* The bracts at base of inflorescence are more lanceolate.

Lasianthus bractescens, n. sp.

A shrub. Branches, midrib above and nerves beneath and inflorescence hairy. Leaves oblong, long-acuminate, often abruptly, base rounded, sometimes slightly unequal, thinly membranous, sparsely hairy above, more densely beneath, nerves 12 pairs, fine elevate beneath, 6 in. long, 1.5 in. wide, petiole .05 in. long. Stipules lanceolate, acuminate, densely hairy. Heads .2 in. across, surrounded by lanceolate acuminate bracts, hairy on both sides .3 in. long. Calyx lobes narrow, lanceolate, acuminate, hairy. Corolla white, much longer, glabrous except the mouth, white-hairy, tube slender, cylindric .25 in. long, lobes short, blunt.

SELANGOR, Batu Caves.

var. *rosulatus*. Leaves oblong sessile, broad, bases unequal. Bracts ovate acute forming a rosette round the flowers, each 1 in. or more long.

PERAK, Telok Pinang, Lenggong, Temengoh.

This closely resembles *Lasianthus pilosus* but differs in the large and conspicuous bracts.

Lasianthus crassifolius, n. sp.

A stout woody shrub. Young branches puberulous. Leaves stiff, coriaceous, above glabrous and shining, elliptic lanceolate, acuminate cordate, blunt, base short, narrowed, nerves 9-12 pairs, thin, elevate, puberulous when young, reticulations conspicuous 7 in. long, 2 in. wide, petiole .4 in. long, pubescent. Stipules small, triangular. Cymes few-flowered on woody peduncles .2 in. long. Bracts small, ovate, hairy. Flowers sessile .15 in. long. Calyx very short shallow, lobes small spreading hairy. Corolla silky-hairy, lobes short. Fruit ovoid narrowed at base, tip hairy .1 in. long when dry.

MALACCA; (Maingay). SELANGOR; Sempang mines (*Ridley* 15689).

Lasianthus politus, n. sp.

Shrub. Branches entirely covered with dense tomentose hair as are the petioles, midrib and nerves beneath and inflorescence. Leaves coriaceous, bright shining green above, hairy beneath lanceolate acuminate, base shortly acuminate, nerves faintly depressed above, elevate beneath 6 pairs, reticulations also elevate conspicuous 3-5 in. long, .75 in. wide; petiole thick .1 in. Stipules narrow lanceolate, densely hairy soon disappearing. Heads dense, .2 in. long. Bracts linear, long, hairy. Flowers sessile. Calyx tube short globose, lobes 5 lanceolate linear acuminate densely hairy. Corolla not seen. Fruit globose obscurely 5-lobed, hairy at top terminated by the connivent sepals, .2 in. long.

SELANGOR; Sempang mines (*Ridley*).

Lasianthus villosus, n. sp.

A hairy shrub. The branches petioles, stipules, bracts midrib on both sides and nerves beneath villous. Leaves elliptic, long-cuspidate acuminate, base narrowed, cuneate or more commonly rounded, blunt, glabrous above except the midrib, beneath villous-hairy, nerves 18 pairs, elevate beneath, nervules undulate transverse with some reticulations, 4-6 in. long, 1.5 to 2 in. wide, petiole .1 in. long. Stipules lanceolate, acuminate golden-villous, .2 in. long. Flowers few on a stout peduncle 2 in. long with lanceolate acuminate bracts .15 in. long. Calyx villous, tube subglobose, lobes 4, triangular short, glabrous inside. Corolla glabrous .15 in. long, tube short cylindric, lobes 4 lanceolate as long, a mass of hairs in the mouth. Fruit globose, hairy.

PERAK, Tapah (*Ridley* 14074).

Lasianthus (§ Mephitidia) **glaberrimus,** n. sp.

A fetid shrub with slender branches quite glabrous. Leaves membranous, lanceolate acuminate caudate, base cuneate drying black, nerves faint, very fine about 9 pairs, inarching boldly .1 in. from the edge, reticulations wide, hardly conspicuous 3.4-4 in. long, 1-1.25 in. wide, petiole .05 in. long. Stipules lanceolate, caducous. Flowers very small two or three in axillary fascicles sessile. Calyx lobes very short, tube campanulate. Corolla .05 in. long, tube slender, lobes valvate, ovary trilocular with 1 ovule in each cell. Style simple, stigma bifid. Fruit blue obconic .1 in. through Pyrenes 2.

SELANGOR; Semangkok Pass (*Ridley* 8574). MALACCA; (*Maingay*). PENANG; West Hill and Moniot's Road (*Curtis* 964). KEDAH; Kedah Peak (*Ridley* 5549).

Clarke suggested that this was a *Saprosma* and says it is not a *Mephitidia* but it does not seem to me to resemble a *Saprosma* at all.

Morinda elliptica, n. sp. *M. citrifolia* var. *elliptica,* King and Gamble in Materials.

It seems most extraordinary that this plant by far the commonest species in the Malay Peninsula, and most abundant in newly cleared ground should be up to the present time nameless, but indeed it is so common and well-known in its habitats that hardly any botanist has troubled to collect specimens. There are only one or two poor specimens in the Kew herbarium and I think none at the British Museum. These specimens have been mistaken for the very different *Morinda citrifolia,* L. or of a variety of it *M. elliptica* a small tree or shrub with pale bark about 12-14 feet tall occasionally larger.

Leaves narrow elliptic or oblanceolate shortly acuminate and long narrowed to base, dull green rather fleshy drying black, nerves about 7 pairs; 5 in. long, 1.25 in. wide, petiole .4 in. long. Peduncles slender 1.25 in. long. Head of flowers .25 in. long, green, flowers white. Fruit head oblong green hardly pulpy .5 in. long, common all over the Peninsula in cleared ground among lalang, and more bushy on rocks by the sea to complete the account of this plant additional specimens are badly needed. It is quite different from *Citrifolia* which has large ovate round leaves, much larger heads of flowers, and oblong white pulpy fruit as big as the fist. This species I have never seen really wild. It is common in Campongs, and is the true Mengkudu of the Malays. It may be a native of India.

Coelospermum biovulatum, Clarke MSS. Herb. Kew.

Leaves thin, coriaceous, not fleshy elliptic abruptly cuspidate acute or shortly acuminate, base cuneate unequal, glabrous, shining above 6 in. long, 2.75 in. wide, nerves hardly visible above, beneath conspicuously elevate inarching .2 in. from edge, reticulations elevate, petiole .7 in. long. Stipules short acute. Peduncle 1.5 in. long with 4 or 5 branches .25 in. long bearing 5-6 terminal umbellate flowers. Calyx puberulous, campanulate with rather a wide rim .12 in. across. Corolla in bud clubbed fusiform, .4 in. tube .3 in. slightly dilate upwards lobes linear recurved, more than as half as long, yellow. Stamen filaments long, projecting. Anthers long, linear curved ovary 2-celled, ovule one in each cell on the middle of the septum.

MALACCA; (*Maingay* No. 3053).

This has been referred by Hooker to *C. scandens*, Bl. and to *C. truncatum* by King. It totally differs from either species in which the texture of the leaves is so fleshy that they dry black and hardly show the nervation. It is apparently a very rare plant as no one but Maingay has collected it.

Psychotria rudis, n. sp.

Shrub, not branched. Leaves elliptic lanceolate, long acuminate, long narrowed to base, membranous sparsely hairy on nerves and nervules above thickly sprinkled with hairs on back, nerves 10 pairs elevate beneath 6-8 in. long, 2-2.5 in. wide, petiole slender, hairy .75 in. Panicle terminal, hairy branches in fruit, slender. Drupe black, oblong 4 angled when dry .24 in. long pyrenes inner face elliptic, flat, back rounded with a keel. Flowers not seen.

KEDAH: Kedah Peak 2,800-4,000 alt. (*Robinson*).

This has the habit of *P. Griffithii* but the leaves are thinner and quite hairy.

Psychotria setistipula, n. sp.

A shrub. Bark pale. Leaves coriaceous lanceolate, glabrous narrowed to both ends, the acumination longest at base from the middle of the leaf, underside paler than upper, nerves 12 pairs, faint, 4-5 in. long, 1.5 in. wide, petiole .5 in. long. Stipules broad oblong truncate with a long setiform cusp rising from the back. Cymes terminal 3, peduncle 2 in. long glabrous branches .5-1 in. long puberulous, bearing 1-3 globose umbelled cymules at the tip .3 in. through. Bracts lanceolate acuminate. Bracteoles usually blunt.

SELANGOR; Gunong Mengkuang Lebar (*Robinson*).

This plant (only in young bud unfortunately) resembles *P. angulata,* Korth., but the stipules are quite different, the leaves more coriaceous and the inflorescence puberulous.

Psychotria minutiflora, n. sp.

Stems glabrous. Leaves membranous elliptis, lanceolate acuminate, base long, narrowed, drying black, nerves 13 pairs conspicuous elevate beneath 6-7 in. long, 1.5-2 in. wide, petiole slender 1.5-2 in. long. Stipules broad, oblong, abruptly blunt acuminate, connate edge ciliate .6 in. long. Cyme panicled sessile, many-flowered, 1.5 in. long, 2 in. wide. Calyx short cup-shaped, narrowed below the broad short toothed limb. Corolla .05 tubular, short, lobes as long as tube, 5 reflexed, mouth tomentose. Anthers short, filament in mouth of tube projecting. Style longer bilobed with thick lobes at apex. Ovary 2-celled. 2-seeded.

SELANGOR; Ginting Sempah (*Ridley*).

Cephaelis.

The Malayan species of this genus have been much confused in the Flora of British India and especially in King's Materials. The succulence of the plants makes them often difficult to dry properly and consequently specimens are often troublesome to make out.

C. cuneatum, Korth. This plant a native of Mount Singalan in Sumatra cannot possibly be the narrow leaved plant of Mount Ophir, as it is described by Korthals as having obovate leaves. It is however, so identified in both the works above referred to. I propose for the Mount Ophir plant the name of *Cephaelis angustifolia,* n. sp.

Herbaceous plant, stem slender, not or hardly branched. Leaves linear lanceolate acuminate, long—narrowed to the base, and to the apex from the middle, fleshy menbranous, nerves fine, about 15 pairs, slender curved ascending, 6-9 in. long, 1-1.5 in. wide, petiole 1.5 in. long. Stipules connate in a tube with two acuminate points .2 in. long. Peduncle slender

2-3 in. long. Capitulum .75-1 in. across. Bracts ovate orbicular rounded truncate .4 in. long and as wide. Calyx truncate. Corolla honey yellow, tube cylindric curved. Fruit oblong .5 in. long when dry, light blue.

MALACCA, Mount Ophir (all collectors). JOHOR, Gunong Pantai and NEGRI SEMBILAN, Gunong Tampin, a form with broader leaves.

Cephaelis Ridleyi, King and Gamble. This seems to have been based on a plant collected by me at Bukit Kutu in Selangor, a remarkably stout species about 2 feet tall, the stem thick and fleshy, with the leaves all deeply tinted with purple. The flowers also purple. To this I would add a plant collected at Gunong Inas by Yapp at an altitude of 3,500 feet. But the plants collected in Singapore and Curtis's plant from Penang appear to me to be totally different though King and Gamble call these also *C. Ridleyi.*

I would separate them under the name of *C. singapurensis.* Whole plant about 2 feet tall, stem moderately slender. Leaves elongate lanceolate acuminate long—narrowed to base nerves 16 pairs, 9 in. long, 2.5 in. wide, petiole 1 in. long. Stipules connate into a tube with 2 blunt points .15 in. long. Peduncle 1-2.5 in. long. Head about 1 in. across. Bracts outer pair broad, ovate subacute or blunt, inner ones oblong. Calyx very short, truncate. Corolla 1.25 in. long, tube thick, lobes ovate obtuse, all honey yellow. Fruit light blue.

In damp woods. SINGAPORE; Bajau. JOHOR; Gunong Pulai and Gunong Pantai.

Cephaelis elliptica, n. sp. *C. cuneata* var. *elliptica,* Ridl.

Shrubby, stem rather slender. Leaves membranous, not fleshy, elliptic apex caudate, acuminate base narrowed decurrent on petiole, nerves 11 pairs 4.5 in. long, 1.5 in. wide. Peduncle 1.5-2 in. long, terminal and axillary. Flowers not seen. Fruit oblong, rounded at tip and base with a strong rib on each side .4 in. long, .3 in. wide (dry).

PAHANG, Telom (*Ridley* 13636).

I have not seen flowers of this plant but the foliage in texture and shape is very different from any other species and the fruit is much less pulpy.

Cephaelis triceps, n. sp.

About a foot or more tall. Leaves somewhat or very unequal in size, rather fleshy, membranous, elliptic, shortly blunt acuminate, base shortly cuneate, nerves about 12 pairs, slightly prominent beneath, 5.5 to 6 in. long, 2.1 in. wide, petiole not winged .5 in. long. Stipules coriaceous connate with short ovate points .25 in. long. Peduncle 1.75 in. bearing 3 pedunculate heads, peduncles thick .5 in. long. Involucral bracts coriaceous connate, boat-shaped, acuminate, involucre 1 in. across. Bracts of heads broad, oblong .5 in. Heads .5 in. across of few flowers. Colyx .2 in. long, limb cup-shaped, entire. Buds subglobose. Corolla tube cylindric .25 in. long.

SELANGOR; Sempang mines, Semangkok about 3,000 ft. (*Ridley*).

This is very distinct from any other of our species in the 3 peduncled heads on a common peduncle.

Cephaelis elongata, n. sp.

Stem woody 14 in. tall, rather slender, internodes 1.5 in. long. Leaves narrow lanceolate, long, acuminate, base narrowed, slightly fleshy, membranous, nerves faint 8 pairs, 4-5 in. long, 1 in. wide, petiole winged .1 in. long. Stipules ovate lanceolate, blunt, connate .1 in. Peduncle .4 in. long. Heads .25 in. across of 5 or 6 flowers and 2 lanceolate bracts .25 in. long. Floral bracts ovate, boat-shaped, blunt, .12 in. long. Flowers nearly sessile. Calyx cup-shaped, entire, .05 in. long. Corolla tube cylindric, dilate at mouth .3 in. long, lobes ovate lanceolate acute .1 in. long. Fruit oblong .2 in. long 4-ridged crowned with the calyx.

SELANGOR, Semangkok Pass. (*Ridley*).

COMPOSITAE.

Erigeron sumatrense, Retz. Obs. v. p. 28. The plant formerly identified for me at Kew as *Conyza semipinnatifida,* Wall. (Journ. Roy. As. Soc. xlix, p. 18). I find on comparison does not belong to that species, but is an *Erigeron* allied to *E. linifolius,* Willd. a plant of unknown origin, to which it has also been referred, but it more distinctly fits the description of *E. sumatrense,* Retz., only known from his description however. It is a hairy weed from 3-6 feet tall. Leaves membranous lanceolate strongly sparsely toothed, gradually narrowed to the base of the petiole 3.5 in. long and .5 in. across. The upper leaves among the inflorescence-branches are linear 1 in. long .05 in. wide and entire. All are coarsely white; hairy. The terminal panicle is large, much branched and hairy. Heads in flower .1 in. long, yellowish on pedicels .25 in. long in fruit they are .4 in. across. The involucral bracts very narrow, hairy and shorter than the white pappus. The outer flowers are very narrow, 2 lipped with 2 minute staminodes quite sterile. The inner (disk) flowers tubular, whitish green, lobes acute, short sepaline hairs as long as the tube, anthers projecting brown-yellow turning brown after fall of pollen.

I is a common weed in clearings, in SINGAPORE, JOHOR, PAHANG, MALACCA, SELANGOR, PERAK, DINDINGS and PENANG and also occurs in SIAM, JAVA and the PHILIPPINES at Benguet (*Loher* 3615).

It is known as Sari Bulan and Sumbong Jantan.

Erigeron oreophilum, n. sp.

A simple unbranched leafy herb. 6-8 inches tall softly pubescent. Leaves oblong lanceolate entire obtuse (the upper ones smaller and narrower and acute and narrowed to the base of the petiole .4 in. long .12 in wide or less, all white, hairy. Heads racemose or with 1 or 2 short branches at the base of the raceme .1 in. long in flower .20 in. across in fruit, on short slender peduncles .12 in. long. The involucral bracts very narrow linear acuminate pubescent or glabrous, not imbricating. Outer florets with a minute oblong ligule. Achene unripe glabrous pappus white.

PERAK, Gunong Kerbau at 6,600 ft. (*Robinson*).

Referred by me formerly to *E. linifolius,* but the foliage will not suit that plant as it seems to be always entire, and I do not think it can be a mountain form of that. It does not appear to be closely allied to any other species.

VACCINIACEAE.

Vaccinium ardisiflora, Ridl. I find that *V. ardisiflora* is a name already occupied and substitute *V. ardisiflora* for it.

Vaccinium loranthifolium, n. sp.

A stunted tree with thick black branches. Leaves stiff coriaceous obovate rounded narrowed to petiole, gland dotted beneath, nerves obscure 3 pairs rising from the midrib 2-2.75 in. long, 1-1.35 in. wide, petiole thick .2 in. long.

Racemes thick subterminal 2.5 in. long, rachis red. Flowers close-set, on very short curved pedicels. Bracts (caducous) oblong obtuse broad .2 in. long. Calyx cupular pubescent with broad ovate lobes. Corolla fleshy globose ovoid glabrous outside, hairy within. Stamens 10 short, filaments very short, hairy, anthers short, tubes nearly as long as anther cylindric, no dorsal or basal appendage. Style little longer than the stamens, thick, glabrous. Fruit fleshy, subglobose terminated by the broad calyx lobes .15 in. long, on short thick pedicel .1 in. long.

PERAK; Gunong Kerbau 4,500 ft. (*Robinson*) at 7,000 ft. (*Aniff*).

Allied to *V. viscifolium,* King and Gamble but with much larger fruit with large sepals, and a larger ovoid fleshy corolla.

V. Teysmanni, Miq. Fl. Ind. Bat. ii .p. 1062. The plants referred to this species by King and Gamble, cannot I think be this Javanese species, which was ovoid, not cylindric corollas. I propose the name of *V. perakense* for the plant so described by King in the Materials.

Vaccinium Wrayi, n. sp.

A tree. Leaves small elliptic slightly narrowed at both ends stiffly coriaceous, nerves faint but visible when dry as are reticulations, 6 pairs, 1.25-2 in. long .75-1 in. wide, petiole thick .1 in. long. Racemes 3 inches long, flowers scattered, all puberulous. Pedicels decurved .15 in. Calyx flat saucer-like with 5 large triangular lobes spreading. Corolla reddish pink, conoid-cylindric .15 in. long puberulous outside, hairy within, lobes short, rounded. Stamens very short, filaments very short with long hairs. Anthers small ellipsoid, the tubes short curved forwards, shorter than anther, a dorsal filiform process on the back of the anther. Style shorter than the corolla, little longer than the stamens pubescent. Disc hairy. Fruit globose minutely puberulous disc short hairy hemispheric. Sepals as long as disc, acute.

PERAK; Camp on Ulu Batang, Padang 4,900 ft. (*Wray* 1528). "Tree, flower reddish-pink, fruit green, leaf-stalks crimson."

Erroneously referred to *V. bancanum,* Miq. by King, which it is perhaps allied to as it has the same peculiar trumpet-shaped spurs to the anther. In all other points however, it is quite different.

Vaccinium Kunstleri, King, appears to me to be a form only of *V. bancanum,* Miq.

MYRSINEAE.

Ardisia singaporensis, n. sp.

A small tree. The young parts densely red scurfy. Leaves thinly coriaceous elliptic lanceolate acuminate acute base narrowed edge slightly wavy closely gland-dotted, glabrous above scurfy beneath chiefly on the midrib on young leaves, nerves about 18 pairs fine and inconspicuous, secondary nerves nearly as conspicuous 4.5 to 7 inches long, 1.75-2 in. wide, petiole .5 in. long. Panicles in terminal axils scurfy, of several umbels on peduncles 1 in. long, secondary peduncles .5, pedicels .2 dilate upwards. Flowers bright pink .1 in. long. Buds ovoid. Calyx and lobes small oblong ovate scurfy. Corolla lobes ovate acute glabrous. Drupe globose .2 in. through, black.

SINGAPORE, Pulau Ubin (*Ridley* 2816) Changi Road (*Ridley* 2833).

This pretty tree was by some error referred by numbers at least to *A. villosa* by King and Gamble. It is most nearly allied to *A. ferruginea*, Mez. of Johor, and to *A. Miqueliana*, Teysm, but the leaves are larger and narrowed to the base.

SAPOTACEAE.

Palaquium calophylloides, n. sp.

A big tree 50 to 60 feet tall. Leaves stiffly coriaceous obovate, shortly blunt acuminate base cuneate, nerves very fine and inconspicuous about 10 pairs, nearly parallel horizontal forking at the tips, the secondary nervules and reticulations as visible, midrib flat above strongly elevate acute beneath 4 inches long and 2.5 in. wide, petiole 1 in. long thickened and rugose at base. Flowers in fascicles of 3 or 4 on tubercles on the branch below the leaves, pedicels thick .25 in. long pubescent. Calyx-lobes .1 in. long, outer three ovate, rounded finely hairy, inner ones narrower, shorter lanceolate subacute. Corolla .2 in. long, lobes oblong lanceolate subacute, tube much shorter, all glabrous. Style a little longer than the petals.

KEDAH; Kedah Peak at 1,000 ft. (*L. M. Bell and Mhd. Aniff*).

This differs from *P. Ridleyi*, King and Gamble in the faint obscure nerves and the two pairs of calyx lobes being dissimilar. The pedicels are also thicker and the corolla tube very short. The set of Palaquiums to which this species belongs are generally very scantily represented in herbaria on account of the immense height of the trees usually 80 ft. to the first branch and the small inconspicuous flowers. They include *P. bancanum, P. Ridleyi, P. Harveyi* and *P. microphyllum*.

Payena lanceolata, n. sp.

A tree. The branchlets petiole and midrib in young leaves red tomentose. Leaves thin coriaceous lanceolate shortly cordate acuminate base narrowed drying pale greenish, nerves very fine 11-12 pairs, horizontal with the reticulations conspicuous below, midrib prominent 3 in. long, 1 in. wide, petiole slender 1 in. long. Flowers in fascicles of 2-4 in the leaf axils, pedicels stout .5 in. long, minutely pubescent. Calyx glabrous outer lobes .2 inches thick ovate blunt, inner valvate not meeting, edge ciliate. Corolla .5 in. long, tube as long as the calyx, lobes oblong rounded, blunt. Filaments very short 18, anthers conic ovate, appendage very short, hairy. Style and ovary glabrous. Style .4 in. long.

KEDAH, Lankawi on Gunong Raya (*Aniff*).

Allied to *P. lucida*, but the leaves are very narrow more stiff exactly lanceolate, and flowers nearly glabrous.

Payena utilis, n. sp.

A very large tree. Leaves small oblanceolate tip round or blunt-pointed, base long narrowed thinly coriaceous drying green, shining above pale beneath, nerves 8 pairs, faint but visible above and midrib elevate beneath, broad, flat above 3 in. long, 1-1.5 in. wide, petiole slender 1 in. long glabrous or with a few red hairs. Flowers numerous in the uppermost leaf axils forming a subterminal tuft, pedicels slender, glabrous or sparsely pubescent. Calyx subcylindric, lobes lanceolate blunt and narrow, pubescent .25 in. long, inner pair oblong and narrower. Corolla-tube cylindric .25 in. long hairy inside, lobes linear narrow blunt, recurved shorter than the tube. Stamens 16 filaments long slender exsert as long as the lobes, anthers linear-oblong, appendage minute. Seed very large 1.5 in. long 1 in. wide, .5 inches through, elliptic base round tip subacute yellow-brown, hilum half the width of the seed.

The "Betis" or "Bilian" of the Malay Peninsula (not of course The Borneo Bilian) I partly described this in the Agricultural Bulletin, vol. v, p. 39, but at that time had only leaves and seeds. In the Kew Herbarium are specimens with flowers from Ulu Selangor collected by Mhd. Hashin for the Forest Department.

OLEACEAE.

Linociera spicifera, n. sp.

Tree. Bark of branches white. Leaves coriaceous elliptic abruptly acute acuminate base shortly cuneate, nerves 7-8 pairs faintly depressed above, slightly elevate beneath, inarching at apices, midrib prominent on both sides 4-4.5 in. long, 1.5 in. wide, petiole .15 in. long thick pale papillose. Flowers sessile in short racemes .24 inches long with persistent coriaceous ovate bracts. Calyx campanulate with 4 very short rounded lobes. Corolla tube very short, lobes narrow linear .25 in. dilate at base, narrowed upwards and edges incurved. Stamens, anthers ovoid obtuse with very short filaments, ovary oblong with a sessile stigma.

SELANGOR; Rawang, Forest reserve (*Kloss*).

Linociera parvifolia, n. sp.

Apparently a glabrous bush with strict black branches. Leaves coriaceous lanceolate or subrhomboid or oblanceolate blunt, midrib depressed above, elevate beneath, nerves about 6 pairs, very fine almost invisible above and faint beneath. 1-1.75 inches long, .5-75 in. wide, petiole slender .12 in. long. Cymes panicled base spreading .5 in. long, flowers in threes at the end of branches, pedicels .1 in. long. Calyx shortly cup-shaped with 4 small ovate teeth. Corolla .1 long tube very short, lobes 4 ovate triangular, blunt. Stamens 2, oblong with very short filaments. Ovary conic with a short style and small capitate stigma.

SELANGOR; Gunong Mengkuang at 5,000 ft. (*Robinson*).

APOCYNACEAE.

Alstonia micrantha, n. sp.

Branches slender. Leaves opposite, coriaceous oblong abruptly short, caudate, base shortly cuneate, nerves very fine parallel very numerous, secondary ones as conspicuous joining in a fine intramarginal vein close to the edge 4-4.5 in. long, 1.5-1.5 in. wide, petiole .25 in. long. Panicles axillary slender 3 inches long, branches distant 3 or 4, about an inch long either bearing at the tip secondary branches or simple umbellate with numerous small flowers, very shortly pedicelled. Bracts small, ovate. Calyx-tube very short, campanulate lobes rounded, ciliate. Corolla .05 in. long, tube cylindric slightly dilate in the middle, lobes oblique, oblong lanceolate more than half as long as tube, glabrous (apparently pink) 5 oblong scales deflexed in mouth of tube. Stamens just below the mouth 4, anthers ovate lanceolate shortly sagittate and filaments short. Disc thin, flat annular undulate. Ovary simple conical, glabrous, style very slender cup-shaped.

SELANGOR; Rantau Panjang (*Kloss*).

Micrechites.

In King's and Gamble's description of this genus in the Materials p. 504, two species are given, viz. *M. polyantha,* Miq. and *M. elliptica,* Hook. fil. Of the latter the Malay form is given as a variety *Scortechinii,* based on a plant of which I have only seen a poor specimen. It seems however, to be quite different from the Himalayan species *M. elliptica* and so I separate it as *M. Scortechinii* both leaves and flowers are considerably bigger than in Melliptica. *M. polyantha,* Miq. as described by King and Gamble appears to comprise at least 3 species exclusive of the true plant of Miquel.

M. furcata, Ridl. n. sp.

A rather stout climber, stems slightly angled. Leaves chartaceous, coriaceous elliptic or elliptic lanceolate, bluntly acuminate, base narrowed, nerves 14-18 pairs, secondary nerves nearly as conspicuous, all fine, slightly elevate inarching close to the edge, reticulations fairly conspicuous 3.5-5 in. long, 1.5-2 in. wide, petiole .25 in. long. Cymes axillary and terminal on the lateral branches, when fully developed about 2 in. long and about 1-2 in. wide, dense-flowered, peduncles and branches angled, glabrous, terminal branches pubescent.

Flowers cream-color, nearly sessile. Bracts ovate dense (reddish) pubescent. Calyx-tube narrow, campanulate, lobes ovate lanceolate, .1 in. long. Corolla urceolate or obovoid with rather long unequally bilobed lobes, lobules linear obtuse all glabrous, anthers acuminate. Ovary densely villous with low lobed saucer-like disc. Style short. Follicles unripe linear acute terete, 6 in. long.

PERAK; Relau Tujor (*Wray* 2604) overhanging Bernam River (*Kunstler* 8859).

This certainly has the habit of the Javanese *M. polyantha* Miq., but the leaves are broader, and more coriaceous, the inflorescence denser; the calyx very much larger with broader lobes and the petals bilobed not entire.

Micrechites brachypetala, n. sp.

A rather slender woody climber. Leaves thinly coriaceous obovate bluntly short acuminate, base shortly narrowed, nerves 7-8 pairs, reticulations fine, close, 2.5 in. long, 1.5 in. wide; petiole .25 in. Panicles terminal 2.5 in. long subglabrous, the branches in pairs 1 in. long, branchlets .5 in. long again branched lax, final branches .1-.2 in. long with several pairs of persistent bracts whence flowers have fallen Calyx cup-shaped with very short teeth slightly pubescent. Corolla cylindric urceolate, lobes very short, tooth-like, entire straight.

PENANG; Penara Bukit (*Curtis* 850).

Micrechites tenuifolia, n. sp.

Straggling climber. Leaves rather thin almost membranous broadly elliptic, lanceolate, narrowed to both ends, tip blunt, base subacute, nerves very fine about 10 pairs, 2 in. long, 1.5 in. wide, petiole slender .3 in. long. Cymes small about 1 inch long, axillary and by fall of the leaves in a lax simple panicle of short distant branches, 4-6 in. long, branches puberulous. Bracts ovate, acute persistent as in preceding. Calyx lobes ovate-round puberulous. Corolla glabrous .05 in. long, tube cylindric, lobes short oblong linear, entire.

MALACCA; (*Maingay*). SELANGOR, Ginting, Bidai (*Ridley* 7142) and Kwala Lumpur (*Ridley* 1857, 1905).

Like the last but calyx lobes rounded, corolla lobes much larger, leaves smaller thin.

ASCLEPIADACEAE.

Dischidia fruticulosa, n. sp.

Epiphytic shrub. Stem stout, woody over .12 in. through base, swollen, branches slender, herbaceous, light green. Leaves when dry rather thin texture elliptic obtuse, narrowed to the base slightly, nerves invisible 2-3 in. long, .75-1.10 in. wide, petiole .1 in. long. Racemes sessile solitary or in pairs lengthening to .5 in., .05 in. thick. Pedicels very short. Calyx lobes oblong, ovate, blunt. Corolla base of tube subglobose abruptly narrowed into a cylindric tube above, .1 in. long, lobes short, acute fleshy, with a deflexed tuft of hairs between each at its base. Coronal scales, claw linear, limb broad hastate round at the top. Stamen column thick, short, appendages blunt, rather thick. Pollinia oblong with short caudicles and a linear oblong carrier rather large.

PERAK; Gunong Kerbau at 4,200 ft. (*Robinson*).

I do not know any *Dischidia* as woody a shrub as this, the stem being quite stout with grey bark, the branchlets light green and herbaceous. The very thick racemes are quite sessile and floriferous from the base, the flowers falling off as the raceme grows.

Dischidia rosea, Ridl. Journ. Roy. As. Str. Br. p. 31.

I find Schlechter has used this name for a Philippine plant a few years earlier, I therefore substitute the name *rhodantha* for *rosea*.

Dischidia astephana, King and Gamble. This plant is described as having white flowers, mainly on the strength of this apparently. Schlechter described his *Conchophyllum angulatum* as a distinct plant with red flowers. As a matter of fact the flowers are sealing-wax red entirely, except the spaces between the prominent ridges which are blue black.

Dischidia nummularia, Br. Prodr. Fl. Nov. Hall. i p. 461. On examining the type of this plant and the excellent original drawing of J. Miller in the British Museum Herbarium it is difficult to imagine how this plant could have been confused with the common Malayan plant so identified by most botanists to the present day. The true plant has ovate flat leaves somewhat like those of *albida* of Griffith, considerably larger umbels of white flowers tipped with yellowish apparently (certainly not scarlet as given by King and Gamble). It is confined as far as I know to North Australia. The leaves of the Malayan Peninsula plant are about a quarter of the size, elliptic to ovate in outline, very fleshy nearly as thick as they are wide, glaucous and mealy, usually yellow. The flowers are white, fewer and small than in *nummularia*. The plant seems to be quite identical with *D. Gaudichaudii*, Decne, and occurs through the Malay Islands to Amboyna, and all through the Malay Peninsula to Tenasserim.

LOGANIACEAE,

Fagraea (Cyrtophyllum) **caudata,** n. sp.

A tree thirty feet tall, branches slender. Leaves coriaceous lanceolate caudate, base narrowed to the petiole and decurrent thereon, nerves about 4 pairs widely inarching .05-.1 from the edge, slightly elevate beneath and nearly or quite invisible above, midrib sunk above, raised beneath, 4 in. long, 1 in. wide, petiole .5 in. long. Inflorescence axillary in upper axils and lower down, peduncle very slender 2 in. long bearing 3 flowers on pedicels as long and as slender. Calyx small .12 in. tube very short, lobes ovate subacute. Corolla yellow, tube narrow cylindric .4 in. long, limb .5 across, lobes ovate, rounded, .2 in. across. Stamens exsert about .4 in. beyond corolla. Style from base 1 in. long, filiform. Stigma small capitate.

BORNEO, Lobb 1853 in Herb. Kew. "Tree 30 feet, yellow."

This species is allied to *F. Wallichii* of Penang Hill, differing in the more coriaceous lanceolate cordate leaves, and extremely slender peduncles and pedicels, cylindric corolla tube and shorter stamens. It would probably be best to keep up the genus *Cyrtophyllum* for the Tembusu trees, which differ so much from the epiphytic true *Fagraeas* with their fleshy leaves and flowers, and included stamens, from the tall trees with their leaves and flowers and long projecting stamens. The genus *Cyrtophyllum* would thus contain *C. fragrans,* Malay Peninsula to S. Siam and Cambodia, *C. giganteum,* Malay Peninsula and Sumatra, *C. Wallichii,* Penang, *C. caudatum,* Sumatra and Borneo, *C. speciosum,* Bl., Java and Borneo. This however, has much smaller flowers and thicker leaves.

Fagraea gigantea, Ridl. *F. speciosa,* Ridl. Journ. Roy. As. Soc. S. Br. 50, p. 122 not of Blume.

Since writing my account of the Tembusu Fagraeas in Journ. Roy. As. Soc. Str. Br. vol. 50, I have seen at Kew specimens of the true *F. speciosa,* Bl. agreeing entirely with Blume's figure in Rumphia. It is quite a different plant from our Tembusu tembaga which is confined to the Malay Peninsula and Sumatra. This plant is unnamed, and I therefore give it the name of *Fagraea gigantea* on account of the great size to which it attains. It is fully described in the Journal at the page quoted.

Gaertnera acuminata, Benth. Journ. Linn. Soc. i p. 112 was based on a plant collected by Wallich in Singapore (No. 8342). It was reduced to a variety of *Koenigii* of Ceylon, a much larger plant, with large leaves and flowers, by Clarke and following him by King and Gamble. It is obviously a different plant and I retain the name *acuminata* for it. Wallich also (8374) got a somewhat different looking plant narrower leaves in Singapore which he called *Psychotria oxyphylla,* Bentham separated this also into a distinct species *G. oxyphylla.*

It seems however, to pass into *G. acuminata* and had better perhaps be kept as a variety of that species. Besides these lowland plants we have a whole series of specimens from our mountain regions which differ in their more compact habit, more coriaceous leaves, dense cymes and short, thick pedicels. They seem to be mountain forms of *oxyphylla* and could be classed as sub var. *Montana*. An allied plant which was obtained by Mr. Robinson on Tampin hill, differs in having the flowers sessile in small heads, and a truncate corolla. This I propose to separate under the name of *G. sessiliflora.*

Gaertnera sessiliflora, n. sp.

A glabrous shrub. Leaves chartaceous, lanceolate acuminate, cuspidate, long narrowed at the base, nerves 7 pairs, slender, elevate beneath 4.5-5.5 in. long, 1.10-1.25 in. wide, petiole .1 in. long. Stipules forming a tube with 2 setaceous points .5 in. long. Cymes 3 of about 6-10 sessile flowers in dense heads .2 in. long, peduncle thick, .3 in. long. Bracts at base of peduncle ovate, long—setaceous. Calyx campanulate limb truncate entire .05 in. Corolla .24 inches long, tube cylindric, lobes as long, round, ovate mouth very woolly. Fruit globose 2-seeded .3 in. through.

NEGRI SEMBILAN, Tampin Hill (*Robinson*).

Gaertnera pedicellata, n. sp.

Slender shrub. Leaves lanceolate cordate acuminate long, narrowed to base, nerves slender 4-6 pairs 3-3.5 in. long, .5 in. wide, petiole .6 in. long, slender. Stipules .25 in. long, tubular with short setaceous points. Cymes terminal lax spreading sessile 1.5 in. long, branches few .5 in. long bearing one to three flowers, pedicels .25 in. long. Calyx wide campanulate .06 in. long, truncate. Corolla 4 in. long, tube rather stout, lobes elliptic, obtuse .15.

SELANGOR; Gunong Mengkuang Lebar (*Robinson*).

This is a slender shrub with a short lax panicled cymes and much longer pedicels than any form of *G. oxyphylla* and longer petioles.

PONTEDERIACEAE.

Monochoria elata, n. sp.

An aquatic plant 6-8 feet tall, stem thick. Leaf petiole 24 in. long, blade hastate, linear 4 in. long, .3 in. wide slightly narrowed to the tip. Lobes at base linear acuminate blunt 1 in. long. Sheathing leaf of inflorescence with a sheath 3 in. long over 1 in. wide, petiole 6-7 in. long, blade spear-shaped 2 in. long, .1 in. wide, base slightly broader, cuneate. Raceme many flowered 3.5-5 in. long. Pedicel slender .4 in. long.

Flowers blue. Sepals and petals .75 in. long, .2 in. wide lanceolate acuminate, petals a little the larger. Stamens 6, filaments rather slender, anthers linear, blunt .2 in. long. Ovary conic passing into the rather stout style. Fruit I have not seen ripe but it appears to be small and oblong. *M. vacinalis,* Prest. var. Mohammed Haniff in Gardens Bulletin i, 1916, p. 354-355.

KEDAH; Jenun, common in rice fields, flowers blue 6-8 feet high (*Mohammed Aniff*) 1208.

In its great height and narrow hastate leaves and raceme this differs from any of the few species of this genus. The only plant at all resembling it is an undescribed species from Port Darwin in Australia collected by Mr. C. E. F. Allen, which may be named as follows:—

M. australasica apparently a submersed plant about 18 inches long. Leaves linear 18 in. long, .15 inches wide. Raceme in the axil of a pair of sheathing leaves, sheath 3 inches long, .6 in. wide, blade linear acuminate, not petiolate nor hastate 1.5 in. long, .1 in. wide. Flowers scattered about 8, blue, pedicels .1 in. long. Sepals and petals oblong lanceolate, narrowed to the tip .4 in. long, .2 in. at base. Stamens short, oblong .05 in. long, blunt at both ends, yellow. Capsule ellipsoid, .5 in. long, .25 in. through, acuminate. Seed oblong, truncate, black with 15 fine ribs running from top to base .05 in. long.

NORTH AUSTRALIA; near Darwin 8. (*C. E. F. Allen,* Nov. 1914.)

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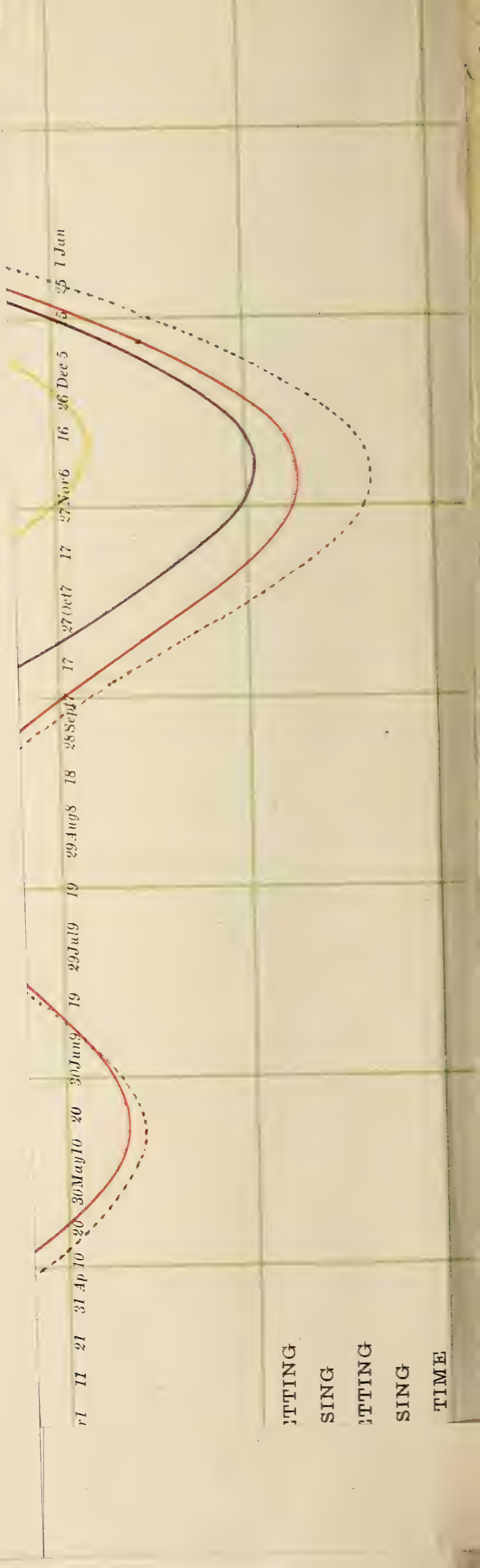
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Time of Sunrise and Sunset at Singapore and Penang throughout the Year.

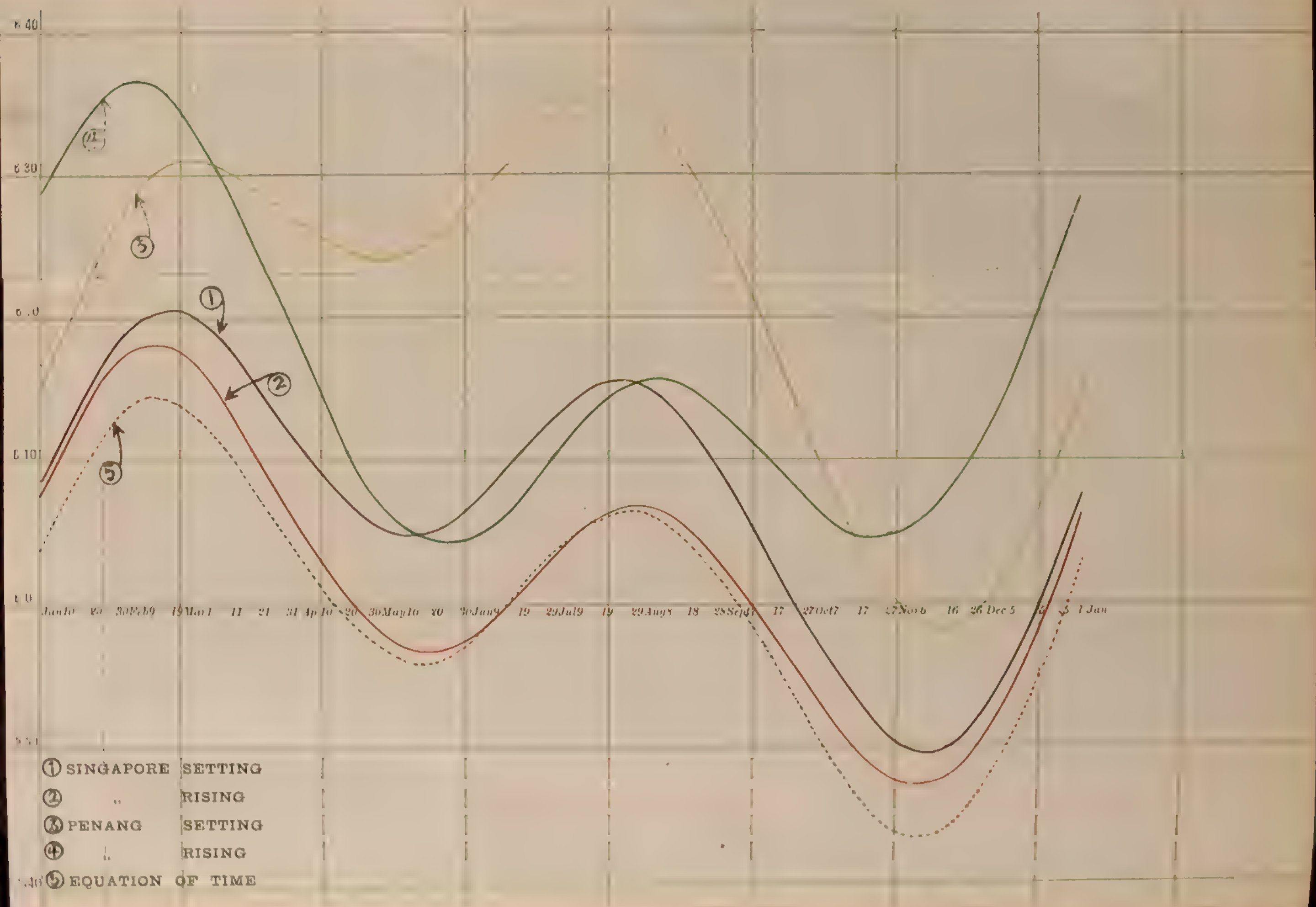
By H. Marriott.

Accompanying this note is a chart showing the times of sunrise and sunset at Singapore and Penang throughout the year.

Each space on the chart represents horizontally an interval of five days and vertically one minute.

A dotted curve shows the 'equation of time' (*i.e.* the difference between apparent solar time as indicated by a sun-dial and mean-time as recorded by the clock). Bearing in mind that by using the standard time of the 105th degree of longitude instead of that of our own longitude of 103° 50′, our clocks in Singapore are 4 minutes 40 seconds ahead of the true time, this dotted line shows how very small is the variation due to our small northern latitude. In Penang the corresponding amount of 'daylight saving' is 18 minutes 36 seconds, but in addition there is quite an appreciable variation on account of latitude. In Singapore the difference between the lengths of the longest and shortest days in the year is only about 9 minutes, in Penang the difference is 36½ minutes. At both places there are two maxima and two minima in the curves, but while in Singapore the longest evenings are in February and are entirely caused by the 'equation of time,' in Penang the effect of latitude is sufficient to make the evenings longer in July than in February.

The times calculated are the Singapore standard times at which the centre of the sun's disc is visible on the horizon to an observer at the sea level, allowance being made for the fact that owing to refraction the sun is visible when in reality it is 36′ below the horizon.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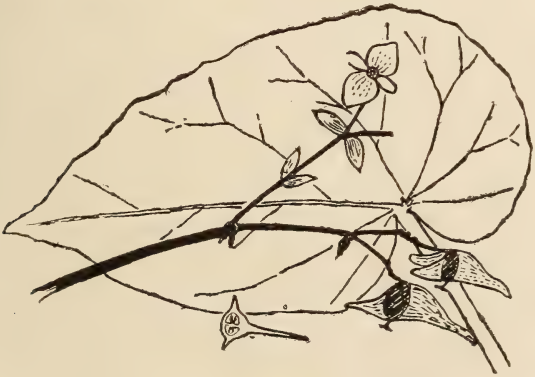
⑤ EQUATION OF TIME

Begonia Haniffii, a small tuberous species of the Islands of Lankawi.

By I. H. Burkill.

In 1896 Mr. Curtis obtained at Kasoom in the Siamese Malay States a tuberous Begonia which Mr. Ridley described in this Journal (No. 50, 1911, p. 106) as *Begonia Curtisii.* The new species here to be described is its counterpart from the islands of Lankawi. Both Kasoom and Lankawi are limestone regions, and both Begonias grow on the limestone rocks, dying down before November and surviving to February, when they sprout, by underground tubers.



Begonia Haniffii was obtained some five years ago by Mr. Mohamed Haniff, and brought into the Waterfall Gardens, Penang, where it persists. From the underground tuber it attains a height at about eight inches; if a weak plant it may have one stem only; if a strong plant it may have up to six. These stems carry 2-4 leaves of which the largest appears to be one with the cordate half to the right of the midrib. The leaves in outline are as drawn here; they are of a dark green thickly covered with small silvery spots, each spot a patch of 40-100 air-containing cells often but not always around the base of a short air-containing hair. Such spots in this species often touch the larger veins. The stem is slightly translucent, crimson, with a little entangled dark hair here and there, but chiefly below: it zigzags at the nodes. The colour, translucency and slight hairiness extend to the petioles. The stipules are pale with a little of the crimson colour along their nerves. The flowers are segregated, the females occupying the best places, the males on lateral branches. The flowers are white with a slight amount of the crimson pigment along the veins. The male flowers may be ¾ inch across and 1 inch from top to bottom. The stamens are about 120 in a globose cluster, not having the connective extended. The female flowers are 5-merous, about ¾ in. across. The style bifurcates close to the base, and each half with a considerable amount of fullness ends in a dull yellow typically marginal stigma. The ovary has two cells with the placenta in each as two plates. The wings of the fruit outside these two cells make nearly equilateral triangles; but the unpaired wing is much elongated, and slightly hooked at the point. The surface of the capsule before maturity is somewhat mealy by reason of sloughing cells.

Begonia Haniffii, species in sectione Platycentro, ad *B. Curtisii*, Ridl., maxime affinis; differt praecipue fructu longe alato, et foliis magis longioribus.

Radix tuberosa. *Caules* erecti, 20 cm. alti, coccinei, hinc inde pilis fuscis tortis tecti, subtranslucentes. *Folia* tenuissime herbacea, inaequilateralia, ad 15 cm. longa, ad 8 cm. lata, 6—7-nervia dense argenteo-maculata maculis ad 2 mm. diametro, praeter pilos perparvos emortuos in medio macularum glabra: petiolus ad 8 cm. longus, colore cauli similis; stipulae 10 mm. longae, ovatae ex basi lata, acutae, 5-nerves, pallidae, in nervis coccineo-tinctae. *Flores masculini* in ramis lateralibus, albi, in nervis coccineo-tincti: petala majora 10 mm. longa, petala minora 8 mm., majora ovata obtusa, minora anguste obovata. *Antherae* circa 120, apice rotundatae. *Flores foeminei* 5-meri, albi, 10 mm. diametro. *Stylus* prope basi bifidus; rami plicati. *Fructus* ob cellulas emortuas subfarinosus, biloculatus, trialatus ala majori ad 20 mm. longa, apice fere hamata, alis minoribus subaequilateralibus 10 mm. longis. *Semina* numerosissima, pallide umbrina, angulata.

Planta haec ex vivo descripta habitat in rupibus calcareis insularum Lankawi. Folia vigescent mense Martio; caules marcent mense Octobri.

The Hindu Element in Malay Marriage Ceremony.

By R. O. Winstedt.

It is well-known that a Malay raja when marrying a secondary wife of inferior rank often does not appear in person but is represented by his *kĕris*. As one might expect, this would appear to be a custom of Indian origin. Among the Tottiyans a caste of Telugu cultivators, who are probably descendants of the soldiers of the Nayakkan kings of Vijayanagar—"if a man belongs to a Zamindar's family, he is said to be of the Raja Kambala caste...... If a marriage is contracted with a woman of an inferior class, the bridegroom does not personally take part in the ceremony: a dagger (*kattar*) or rude sword is sent to represent him and the *tali* is tied in the presence thereof. In a Zamindar's suit, details of which are published in the Madras Law Reports, Vol. XVII, 1894 the judge found that the plaintiff's mother was married to the plaintiff's father in the dagger form; that a dagger is used by the Saptur Zamindars who are called Kattari Kamaya, in the case of inequality in the caste or social position of the bride; that though the customary rites of the Kambala caste were also performed, yet the use of the dagger was an essential addition; and that though she was of a different and inferior caste to that of the plaintiff's father, yet that did not invalidate the marriage." (E. Thurston's *Castes and Tribes of Southern India,* Vol. VII, p. 190).

Diet Nutrition and Excretion of the Asiatic Races in Singapore.

No. 2. MANUAL WORKERS.

By J. Argyll Campbell.

This is the continuation of the work published in August, 1917, when the diet, nutrition and excretion of the local medical students were dealt with (1). In the present paper, manual workers are under observation.

As might be expected considerable difficulty has been experienced in obtaining material from labourers, but with the faithful co-operation of several of the medical students and of others, a number of analyses were possible. It is hoped that more will be done in the future.

Methods.

Kidney Excretions.—The same methods were employed for the estimations of nitrogen, ammonia, urea and chloride, as those used in the previous research (1).

In addition, quantitative estimations of the phosphates and uric acid were carried out. Phosphates were estimated by titration with uranium nitrate in a solution of acetic acid, which precipitates all the phosphate. The end reaction is either the brown colour which is produced by an excess of uranium nitrate in the presence of potassium ferrocyanide or the green colour formed by tincture of cochineal with a surplus of uranium nitrate.

The Hopkins-Wörner method was used to estimate the amount of uric acid present.

Diet.—In some cases details, of the kinds and amounts of food allowed to their workers, were obtained from employers.

In other cases it was possible to weigh the food before each meal.

The compositions of the foods and their heat values have been taken from standard books on the subject (2).

Various Workers.

Chinese Bakers.—Two Chinese bakers, employed by the father of one of the students, supplied material for eight observations. The average figures for the kidney excretions will be seen in Table I. The amount was scanty, 807 c.c. This was due to perspiration whilst in the bakery. The total nitrogen was 8.3 grammes. The ammonia, 1.04 grammes, was high and therefore, so was the ammonia co-efficient, 10.3%. The reason for this is not clear. Probably further experiments will elucidate the problem. The amount of chloride was 5.1 grammes and of uric acid 0.48 gramme.

The diet consisted of rice with small quantities of pork, beef and fish.

Tamil Gardeners.—Fourteen observations were made from material furnished by two Tamil gardeners, working at the Medical School Hostel. The average amounts of kidney excretions were nitrogen 7.2 grammes, urea 13.4, uric acid 0.49, ammonia 0.73, chloride 7 and phosphate 1.25 (Table I). Their average weight was 101 lbs. and their average age 23½ years. The average diet consisted of bread 224 grammes, condensed milk 2, sugar 12, butter 13, boiled rice 1376, fish 84, green vegetables 213. This contains 76 grammes of protein, 19 of fat and 468 of carbohydrate. The heat value is 2407 kilocalories. Judging from their nitrogen excretion they metabolised only 45 grammes of protein, so that they did not metabolise all their food (Table II).

Malay Gardener.—This man worked at the school; two observations were made with his kidney excretions. His average figures were nitrogen 7.9 grammes, urea 15, uric acid 0.6, ammonia 0.61, chloride 5 and phosphate 1.5 (Table I). Rice was his chief food, but no details were obtained. He weighed 120 lbs.

Chinese Rickshaw Runner.—This runner was employed privately by the author. One specimen of kidney excretion was obtained when a full day's running (about 15 miles) was done. His figures were, nitrogen 9.8 grammes, urea 20.4 uric acid 0.54, ammonia 1.06, chloride 2 and phosphate 1.8 (Table I). His diet consisted chiefly of rice with small quantities of beef, pork and fish, but no details were obtained.

Chinese Rubber Estate Coolies.—Five weeders and tappers working on a local rubber estate, owned by a student's father, supplied material for fifteen observations. On an average they excreted by the kidney 10.4 grammes of nitrogen, which is equivalent to the metabolism of 65 grammes of protein. Their daily allowance of food contained 86 grammes of protein, 17 grammes of fat and 611 grammes of carbohydrate, the diet being rice (weighed uncooked) 728 grammes, pork 14, fat 7, fish 112, dried peas 56, green vegetables 224. This gives a heat value of 3015 kilocalories (Table II). It is evident that they did not metabolise all this allowance, only 65 out of 86 grammes of protein in the food being accounted for in the kidney excretion.

The figures for the other excretion were urea 19.4 grammes, uric acid 0.65, ammonia 1.09, chloride 6.6 and phosphate 1.78 (Table I). The average age was 32 years and the average weight 122 lbs.

Chinese Prisoners.—Six first class prisoners at the gaol were next employed, under the supervision of the assistant surgeon. They furnished material for 36 observations. Their daily diet, which is fixed by statute and which is considered to be generous for local labourers, consists of cocoanut oil 28 grammes, fresh meat (with bone) 112, rice (weighed uncooked) 448, salt 7, fish (with bone) 84, vegetables 336 and bread 112. This contains 84 grammes of protein, 50 of fat and 432 of carbohydrate, the heat value being 2580 kilocalories.

The average age of the prisoners was 40 years and the average weight 137 lbs. The average length of time on the above diet was 3 years 4 months. The prisoners were all employed in the prison kitchen. Before their confinement they were variously employed—fisherman, rubber estate coolie, tapioca estate coolie, bullock cart driver, shopkeeper and shop coolie.

The average figures for the kidney excretions were nitrogen 11.4 grammes, urea 21, uric acid 0.43, ammonia 0.75, chloride 5.5 and phosphate 1.8 (Table I).

Judging from the nitrogen excretion they metabolised on an average only 71.2 of the 84 grammes of protein of the food. (Table II).

COMMENTARY.

Looking at the average figures for the kidney excretions (Table I) it will be seen that there is considerable variation for different occupations, after making allowance for the weight. The amount of nitrogen excreted per kilogram of body weight is shown in one column of Table I. The average figures usually given in text books of Physiology for Europeans in Europe are appended. These figures are the standard figures used for teaching purposes, and the figures for manual labourers in Europe are higher than these. A glance will show that the figures for the nitrogen and urea are much lower in the case of the Asiatic labourer in Singapore. This is due to the fact that he metabolises less protein than the European. He also has less energy. Our local gardeners cannot be regarded as hard workers from a European point of view. The estate coolies and rickshaw runner rank amongst our hardest muscular workers. McCay (3) has shown that a European possesses better physique and greater muscular energy than an Asiatic because the former metabolises a larger quantity of protein. Looking at Table II it will be seen that my figures support this view. The average figure for a European doing moderate labour in Europe is 125 grammes, whereas 71.2 is the highest figure obtained in my experiments with the local labourer. On the other hand the carbohydrate part of the diet is increased in amount, relatively and absolutely, in the case of the Asiatic.

Judging from the amount of protein of the diet, accounted for in the kidney excretion the calorific value of the Asiatic labourer's metabolised food (Table II) is a good deal below that of the European, allowance being made for the difference in weight.

The former does less work. Gentlemen, who have controlled labour both in this city and in Europe, have no doubt that the European labourer has better physique and is capable of heavier work than the tropical Asiatic. Undoubtedly climate plays an important part in this matter. The continuous heat and moisture of the atmosphere in Singapore, do not readily allow escape of heat from the body. Work and food increase body heat, so that the natural remedy is to lessen these. One does occasionally see coolies doing very heavy work but they do not keep this up for any length of time.

Returning to Table I. it will be observed that the uric acid, phosphate and chloride are also present in smaller quantities in the local labourer's kidney excretion than in that of the European. This is due to the fact that the diet of the former contains smaller quantities of the substances from which these are derived.

In all cases the ammonia co-efficient for the local Asiatic is higher than that of the European. This is due to the fact that the former excretes a smaller amount of nitrogen.

No reference has been made to the nitrogen excreted by the skin. This is not sufficient to interfere greatly with the results obtained.

CONCLUSIONS.

I. As far as these experiments go, the figures obtained show that on the whole the amounts of kidney excretions for local labourers differ considerably from the standard amounts given for Europeans in Europe.

II. The total nitrogen varies from 7.2 to 11.4 grammes, the urea from 13.4 to 21, the uric acid from 0.43 to 0.65, the ammonia from 0.61 to 1.09, the chloride from 2 to 7, and the phosphate from 1.25 to 1.8.

III. The local labourer uses less protein and fat, but more carbohydrate than the European. The metabolised food of the former has a smaller calorific value. Two reasons, closely connected with one another may be given for this. They live in a continuously hot and moist climate. They do less work.

The author is indebted to the following for assistance in this work—V. Gopalan, Lee Kek Soon, V. Thambar, Tham Ying Khew, H. bin Tyeb and Mr. Hale, the Assistant Surgeon at the Gaol.

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2. Sutherland, G. S., "A System of Diet & Dietetics," 1908.
   Leach, Albert E., "Food Inspection & Analysis," 1911.
   Schäfer, E. A., "Text Book for Physiology," 1898.
3. McCay, The Philippine Journal of Science, B. Medical, Vol. V, p. 163, 1910.

Table I. — Kidney Excretions (Average figures).

Subjects	Age in Years.	Height in inches.	Weight in lbs.	Number of observations.	Total Nitrogen.	Urea.	Uric Acid.	Ammonia.	Ammonia Coefficient.	Chloride.	Phosphate. P_2O_5	Amount.	Specific Gravity.	Nitrogen per kilogram of body weight.
Two Chinese Bakers.	27.5	63	112.5	8	8.3 gm.	17.1 gm.	0.48 gm.	1·04 gm.	10.3 %	5.1 gm.	—	807 c.c.	1021	0.169 gm.
Two Tamil Gardeners.	23.5	63	101	14	7.2 ,,	13.4 ,,	0.49 ,,	0.73 ,,	8.3 ,,	7.0 ,,	1.25 gm	1113 c.c	1016	0.164 ,,
One Malay Gardener.	45	60	120	2	7.9 ,,	15.0 ,,	0.60 ,,	0.61 ,,	6.3 ,,	5.0 ,,	1.50 gm.	680 ,,	1026	0.152 ,,
One Chinese Rickshaw Runner.	—	—	—	1	9.8 ,,	20.4 ,,	0.54 ,,	1.06 ,,	8.9 ,,	2.0 ,,	1.80 ,,	815 ,,	1019	—
Five Chinese Rubber Estate Coolies.	32	—	122	15	10.4 ,,	19.4 ,,	0.65 ,,	1.09 ,,	8.6 ,,	6.6 ,,	1.78 ,,	1122 ,,	1018	0.196 gm.
Six Chinese Prisoners.	40	64	137	36	11.4 ,,	21.0 ,,	0.43 ,,	0.75 ,,	5.5 ,,	5.5 ,,	1.80 ,,	1145 ,,	1018	0.192 ,,
European in Europe. (Standard figures.)	—	—	160	—	16.0 ,,	35.0 ,,	0.75 ,,	0.65 ,,	3.3 ,,	11.0 ,,	3.50 ,,	1500 ,,	1020	0.228 ,,

Table II. — Diet and Metabolism (Average figures).

Subjects.	Diet.	Weight in lbs.	Protein in food.	Protein from nitrogen in urine.	Fat in food.	Carbohydrate in food.	Kilocalories		Remarks re Food.
							in food.	in metabolised food per Kilogram of body weight.	
Two Tamil Gardeners.	Mixed.	101	76	45	19	468	2407	32	Food weighed before each meal.
Five Chinese Rubber Estate Coolies.	,,	122	86	65.0	17	611	3015	43	Daily food allowance.
Six Chinese Prisoners.	,,	137	84	71.2	50	432	2580	36	Daily food allowance.
European in Europe.	,,	160	125	125.0	125	400	3324	47	Average diet for European doing moderate muscular work.

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STRAITS BRANCH
ROYAL ASIATIC SOCIETY.

[No. 80]

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MAY 1919.
~~APRIL, 1919.~~

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[No. 80]

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of the

Royal Asiatic Society

MAY
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THE

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OF THE

ROYAL ASIATIC SOCIETY

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Hon. Mr. W. G. Maxwell, C.M.G.	*President.*
Hayes Marriott, Esq.	*Vice President for Singapore.*
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Dr. Argyll Campbell	*Councillors.*
Hon. Mr. H. W. Firmstone	
Major J. C. Moulton	
H. Robinson, Esq.	

PROCEEDINGS

OF THE

Annual General Meeting.

Minutes of the Annual General Meeting of the Straits Branch of the Royal Asiatic Society, held in the Librarian's Room at the Raffles Museum at 5 p.m. on Thursday, February 27th, 1919.

Present: Hon'ble Mr. C. J. Saunders, President, in the chair; Dr. van Beuningen van Helsdingen, Dr. Argyll Campbell, Hon'ble H. W. Firmstone, Dr. Handy, Messrs. Hayes Marriott, H. Robinson, R. O. Winstedt, Major Moulton, Dr. R. Hanitsch, Hon. Treasurer, Walter Makepeace, Hon. Secretary.

The Minutes of the Annual General Meeting of Feb. 28th, 1918, were taken as read and confirmed.

The Annual Report and Accounts were taken as read and adopted and the election of 34 new members was confirmed.

The Election of Officers and Members of Council resulted as follows:—

President.—The Hon'ble Mr. W. George Maxwell, C.M.G.

Vice President for Singapore.—Mr. Hayes Marriott.

Vice President for Penang.—The Hon'ble Colonel Sir Arthur Adams, K.B.E.

Vice President for the F. M. S.—The Hon'ble Mr. C. W. C. Parr.

Hon. Treas.—Dr. R. Hanitsch.

Hon. Sec.—Mr. W. Makepeace.

Hon. Librarian.—Mr. C. Bazell.

Members of Council.—The Hon'ble Mr. H. W. Firmstone, Major Moulton, Mr. H. Robinson, Dr. Argyll Campbell.

Under the head of "General" Mr. Winstedt asked as to the printing of the Journal; and whether it would not be possible to call for tenders for a period.

Referred to the Council for consideration.

A letter from Mr. Freeman suggested that the Nos. of the Journal containing Malay texts should be advertised on the cover, as he believed many Malays would like to purchase those numbers. It was agreed to do this.

With reference to the Library, Mr. Winstedt called attention to the need for safe keeping any Malay MSS that came into the hands of the Society.

It was also suggested that a list of exchanges should be published in the Annual Report.

Referred to the Hon. Librarian.

The Meeting passed a vote of thanks to Mr. See Tiong Wah, for kindly auditing the accounts.

Proposed by Mr. Firmstone, seconded by Major Moulton and carried by acclamation "That a hearty vote of thanks be accorded to the retiring President for the work he had done for the Society."

Annual Report of the Straits Branch of the Royal Asiatic Society for 1918.

The active membership of the Society is estimated at 306.

Mr. C. O. Blagden was made an honorary member of the Society.

The personnel of the Council has not changed during the year, though some of its members have been away part of the year.

The Society regrets to have to record the deaths of Capt. G. E. Cardew, killed in action April 9th 1918; and of Mr. R. C. Edmonds, J. W. C. Ellis and Dr. R. D. Keith.

The Council has elected the following new Members :—

Mr. A. Majid bin Haji Zainuddin.
Mr. W. R. Boyd.
Mr. G. P. Bradney.
Mr. H. Carpmael.
Lieut. W. L. Crick.
Mr. P. A. F. David.
Hon. Mr. F. M. Elliot.
Mr. I. H. N. Evans.
Mr. F. W. Foxworthy.
Mr. G. B. Gloyne.
Mr. R. M. Goldie.
Major A. Mc D. Graham.
Dr. D. L. Greene.
Mr. N. A. M. Griffin.
Mr. J. P. Hallaway.
Hon. Mr, A. K. E. Hampshire.
Mr. P R Hill.
Mr. D. James.
Mr. P. Jansen.
Mr. F. Clyde Jeavons.
Mr. E. P. Jones.
Mr. Loh Kong Imm.
Dr, S. H. R. Lucy.
Dr. G. H. Macalister.
Mr. Raymond Madge.
T. A. Martin.
Mr. C. Ritchie.
Mr. P. C. Russell.
Mr. C. W. A. Sennett.
Dr. A. T. Stanton.
Mr. G. R. Sykes.
Raja Uda.
Mr. G. C. Valpy.
Mr. B, Wolde.

Journals Nos. 78 and 79 were issued in June and September, and a further number is well under weigh. The Council also decided to print Mr. E D. Merrill's paper on Bornean Plants and 126 pp of this are now in print, but the delay in sending proofs makes the date of publication problematical.

The Council records with pleasure that the supply of short articles from members continues, may with illustrations. No. 78 contains a useful index of the contents of the Journal from No. 52 to 77, thus with No. 51 bringing up the index to date.

The Director, F. M. S. Museums, presented 50 copies of the Korinchi Report which have been retained, except for three copies to the Library and Gardens, to await further parts. The Council expressed its hearty thanks.

Mr. C. O. Blagden was made an honorary member of the Society.

The Council sanctioned the binding of a number of volumes selected by the honorary librarian. The usual exchanges have been received during the year.

The balance sheet of the Honorary Treasurer shows $4,700 invested, including $2,200 in the S. S. War Loan, and $1,366 on current account.

WALTER MAKEPEACE,
Hon. Secretary

Singapore, February 3rd, 1919.

STRAITS BRANCH, ROYAL ASIATIC SOCIETY.

Receipts and Payments Account for the year ended 31st December, 1918.

Receipts.	$	c.	$	c.	Payments	$	c.	$	c.
To Balance brought forward from last Account:					By Printing Journal No. 77 ...	320	88		
					,, do. ,, 78 ...	330	89		
On Fixed Deposit: Mercantile Bank	2 500	—			,, do. ,, 79 ...	442	20		
S. S. War Loan	2,200	—			,, Books for Library	20	—		
Current Account: Mercantile Bank	561	23			,, Stationery	51	13		
do. : Chartered Bank	284	39			,, Salaries	227	61		
		—	5,545	62	,, Postages and Petties	123	4		
To Subscriptions:					,, Illustrations for Journal ...	180	30		
For the year ended 31st Dec. 1914	5	—			,, Cheque Book	2	—		
do. do. 1915	10	—					—	1,698	14
do. do. 1916	35	—			,, Balances carried forward:				
do. do. 1917	145	—			On Fixed Deposit: Mercantile Bank	2,500	—		
do. do. 1918	1.060	—			S. S. War Loan	2,200	—		
do. do. 1919	55	—			Current Account:				
do. do. 1920	5	—			Mercantile Bank				
2 Life Memberships	100	—			Chartered Bank	1,355	59		
		—	1,416	—		10	94	6,066	53
To Sale of Journals			301	67			—		
,, Sale of Maps			247	58					
,, Odd Receipts			2	96					
,, Bank Interest, Mercantile Bank and S. S. War Loan			251	84					
			7,764	67				7,764	67

Audited, vouchers, and counterfoil receipts and F/D receipts seen and found correct.

SEE TIONG WAH.

January 24th, 1919.

R. HANITSCH,

Hon. Treasurer.

January 22nd, 1919.

List of Members for 1919.

*Life Members. †Honorary Members.

Patron His Excellency Sir Arthur Young, G.C.M.G., Governor of the Straits Settlements and High Commissioner for the Malay States.

Date of election.	
18 Jan., 1903.	Abbott, Dr. W. L., 400, South 15th Street, Philadelphia, U. S. A.
10 Aug., 1918.	Abdul-Majid bin Haji Painuddin, Education Office, Telok Anson, Perak.
21 Sept., 1916.	Abraham, H. C., Survey Dept., Kuala Lumpur.
24 June, 1909.	Adam, Frank, The Straits Trading Co., Singapore.
— 1907.	Adams, Lieut.-Col., the Hon. Sir Arthur, Messrs. Adams and Allan, Penang, [Vice-President, 1910; 1917-1919].
14 Dec., 1910.	Adams, H. A., Sadong, Sarawak.
20 June, 1910.	Adams, H. Powys, Imber Cross, Thames, Ditton, Surrey, England.
22 March, 1917.	Adams, Dr. J. W., Malacca.
22 March, 1917.	Adams, Capt. R. H., c/o Messrs. Topham, Jones and Railton, Ltd., Singapore.
10 March, 1909.	Adams, T. S., c/o Crown Agents, Whitehall Gardens, London.
7 Feb., 1910.	Aldworth, J. R. O., Kuala Lumpur.
17 Feb., 1913.	Allen, Rev. George Dexter, M.A., Singapore.
3 May, 1914.	Allen, H. C. W., c/o Messrs. Boustead & Co., Singapore.
22 March, 1917.	Allen, P. T., Chinese Protectorate, Singapore.
16 Feb., 1914.	Amery, Rev. A. J., Victoria Bridge School, Singapore.
— 1907.	Anderson, E., Messrs. Mansfield & Co., London.
12 Oct., 1911.	Armstrong, W. R., L.L.D., D.C.L., Messrs. Logan and Ross, Penang.
27 Oct., 1908.	Arthur, J. S. W., Assistant Adviser, Kedah.
4 June, 1908.	*Ayre, C. F. C., High School, Malacca.
3 May, 1915.	Baddeley, F. M. Postmaster-General, Singapore.
1 Feb., 1915.	Bain, Norman K., Malacca.
20 May, 1912.	Baker, A. C., c/o W. Evans, Esq: The Limes, Crowmarsh near Wallingford, Berks, England, (Hon. Librarian, 1912-1913).

28 Nov.,	1916.	Banks, H. H., Sanitary Board, Seremban.
10 Jan.,	1899.	*Banks, J. E., c/o the American Bridge Co., Ambridge, Pa., U. S. A.
23 June,	1904.	Bartlett, R. J., Inspector of Schools, Singapore.
24 May,	1910.	Bartley, W., Import & Export Dept., Singapore.
20 July,	1914.	Bazell, C., Vade & Co., Singapore. (Hon. Librarian, 1916—19).
24 June,	1909.	Bean, A. W., c/o Messrs. Robinson & Co., Singapore.
16 June,	1913.	Bell, V. G., c/o Crown Agents, Whitehall Gardens, London.
25 Feb.,	1910.	*Berkeley, H., F. M. S., Civil Service, Grik, Upper Perak.
14 Aug.,	1912.	Bicknell, J. W., c/o General Rubber Co., Medan, Sumatra.
—	1885.	Bicknell, W. A., 37, Milton Avenue, Wellsway, Bath, England.
4 June,	1908.	*Bishop, Major C. F., R. A.
27 Jan.,	1890.	†Blagden, C. O., School of Oriental Studies, Finsbury Circus, London. (Hon. Secretary, 1896).
13 Feb.,	1917.	Blair, R. H. Balfour, Tagil Estate, Malacca.
—	1884.	Bland, R. N., C.M.G., c/o Messrs. K. S. King & Co., 9 Pall Mall, London, S. W. I., England. (Council, 1898-1900: Vice-President, 1907—1909).
14 Dec.,	1910.	Boult, F. F., Bintulu, Sarawak.
23 Aug.,	1918.	Boyd, W. R., Rembau, N. S.
16 Aug.,	1915.	Boyd-Walker, J. W., Atbara Estate, Kuantan, Pahang.
13 Jan.,	1913.	Braddell, R. St. J., Messrs. Braddell Bros., Singapore.
12 Feb.,	1918.	Bradney, G. P., Audit Office, Singapore.
23 Sept.,	1897.	Brockman, Sir Edward L., K.C.M.G., Kuala Lumpur.
1 April,	1910.	Brooke, J. R., Government Monopolies Department, Keppel Harbour, Singapore.
13 Jan.,	1909.	Brooks, C. J., Lebong Tandai, Post Ketaun, Benkoelen, Sumatra.
8 Sept.,	1909.	Brown, A. V., Civil Service, Singapore.
16 Aug.,	1915.	Brown, C. C., F. M. S. Civil Service, Kuala Lumpur.
27 Jan.,	1910.	Brown, D. A. M., Messrs. Brown, Phillips and Stewart, Penang.
1 Dec.,	1913.	*Bryan, J. M., Kuching, Sarawak.
26 March,	1887.	Bryant, A. T., (Council, 1907: 1910: Vice-President, 1912, 1914-1916). England.
28 Oct.,	1912.	Burkill, I. H., Botanic Gardens, Singapore. (Council, 1913: Hon. Secretary, 1914-1917).
29 Sept.,	1913.	*Caldecott, Andrew, Fed. Secretariat, Kuala Lumpur.

16 Jan.,	1916.	Campbell, Professor J. Argyll, M.D., D.SC. Medical School, Singapore (Council, 1917-9).
9 Nov.,	1918.	Carpmael, H., Municipality, Singapore.
3 Jan.,	1909.	Carver, C. I., London.
27 Jan.,	1910.	Chancellor, Hon. Capt. A. R., Police Office, Singapore.
15 Jan.,	1906.	Chapman, W. T., Taiping, Perak.
1 Dec.,	1913.	*Choo Kia Peng, Kuala Lumpur.
16 March,	1911.	Clayton, T. W., Messrs. Clayton Sons & Fargus, 10, Lancaster Place, London, W. E. 2.
2 Feb.,	1914.	Clement, W. R. T., Ipoh, Perak.
22 March,	1917.	Clifford, G. F. W., Effingham Estate, Kuala Lumpur.
13 Jan.,	1913.	Chulan, Raja, bin Ex-Sultan Abdullah, Kuala Kangsar, Perak.
30 Jan.,	1894.	†Collyer, W. R., I. S. O., Hackford Hall, Reepham, Norfolk, England. (Council 1904: Vice President, 1897-1900, 1902, 1904-1905: Hon. Member, 1906).
1 March,	1897.	*Conlay, W. L., Kuala Lumpur.
27 Jan.,	1899.	Cook, Rev. J. A. B., Gilstead, Singapore.
—	1910.	Cook, Hon. W. Wallace, c/o The Straits Trading Co., Singapore.
22 March,	1917.	Crichton, R., The Secretariat, Singapore.
10 Aug.,	1918.	Crick, Lieut. W. L., Asst. Mil. Forwarding Officer, Basra, Persian Gulf.
13 Feb.,	1917.	Cross, Rev. W., M.A., Cavanagh Road, Singapore.
14 Aug.,	1912.	Crossle, Frank J., Ulu Kesial Estate, Kelantan.
27 Jan.,	1910.	Croucher, Dr. F. B., General Hospital, Singapore.
22 March,	1917.	Cubitt, G. E. S., Conservator of Forests, S. S. and F. M. S., Kuala Lumpur.
24 May,	1910.	Daly, M. D., Ipoh, Perak.
27 Jan.,	1910.	Darbishire, Hon. C. W., c/o Messrs. Paterson, Simons & Co., Singapore.
7 Oct.,	1918.	*David, P. A. F., Police Court, Singapore.
—	1907.	Dent, Dr. F., Government Analyst, Singapore.
5 Nov.,	1903.	*Deshon, H. F., Southfield, Combe Down, Bath, England.
23 Sept.,	1897.	Dickson, E. A., 26, Randolph Crescent, Maida Hill, London.
28 July,	1905.	Douglas, Hon. R. S., Baram, Sarawak.
30 Nov.,	1914.	Duncan, W. Wallace, Assistant Censor, General Post Office, Penang.
27 Jan.,	1910.	Dunman, W., Grove Estate, Tanjong Katong, Singapore.
16 Aug.,	1915.	*Dussek, O. T., Malay College, Malacca.
—	1885.	Egerton, Sir Walter, K.C.M.G., Renby Grange, Boarshead, near Tunbridge Wells, England.

27 Jan.,	1910.	Ellerton, H. B., F. M. S. Civil Service, Kuala Kangsar, Perak.
9 Nov.,	1918.	Elliot, Hon. F. M., Rodyk and Davidson, Singapore.
3 June,	1909.	Ellis, Sir Evelyn C., England.
27 Jan.,	1910.	Engel, L., Netherlands Trading Society, Batavia.
25 March,	1913.	Ermen, C., Kuching, Sarawak.
17 July,	1918.	Evans, I. H. N., Pekan, Pahang.
27 Jan.,	1910.	Evans, W., The Limes, Crowmarsh near Wallingford, Berks, England.
7 Feb.,	1910.	Falshaw, Dr. P. S., Government Veterinary Department, Singapore.
8 Sept.,	1909.	Farrer, R. J., Ipoh.
26 Jan.,	1911.	*Ferguson-Davie, Rt. Rev. Dr. C. J., Bishop of Singapore (Council, 1912-1913).
8 Sept.,	1909.	Ferrier, J. G., c/o Borneo Company, Soerabaya, Java.
22 March,	1917.	Finlayson, Dr. G. A., Singapore.
24 May,	1910.	Firmstone, Hon. H. W., Education Department, Singapore. (Council, 1918—9).
13 Jan.,	1900.	Fleming, T. C., Larut, Taiping, Perak.
2 Sept.,	1897.	*Flower, Major S. S., Zoological Gardens, Ghizeh, Egypt.
16 Jan.,	1916.	Ford, H. W., Municipal Offices, Malacca.
17 July,	1918.	Foxworthy, F. W., Kuala Lumpur.
19 Aug.,	1908.	Freeman, D., c/o Messrs. Freeman and Madge, Kuala Lumpur.
27 Jan.,	1910.	*Frost, Meadows, c/o Crown Agents, Whitehall Gardens, London.
14 Aug.,	1912.	Gallagher, W. J., General Rubber Co., Medan Sumatra.
23 Jan.,	1903.	†Galloway, Dr. D. J., British Dispensary, Singapore. (Vice-President, 1906—1907; President, 1908—1913; Hon. Member, 1917).
26 Oct.,	1917.	Garnier, Rev. Keppel, Penang.
26 May,	1897.	*Gerini, Lt.-Col. G. E.
8 Sept.,	1903.	Gibson, W. S., High Court, Kedah.
28 May,	1902.	*Gimlette, Dr. J. D., 5, Merton Road, Southsea, England.
4 Jan.,	1916.	Glennie, Dr. J. A. R., Municipal Offices, Singapore.
12 Feb.,	1918.	Gloyne, G. B., Samarang, Java.
		Goldie, R. M., Vade & Co., Singapore.
21 Sept.,	1916.	Goodman, A. M., Penang.
18 March,	1909.	Goulding, R. R., Survey Department, Kuala Lumpur.
17 Feb.,	1918.	Graham, Major A. McD., Ipoh, Perak.
27 Jan.,	1910.	Gray, N. T.
18 April,	1918.	Greene, Dr. D. L., Kuching, Sarawak.
14 Sept.,	1911.	Griffiths, J., Superintendent of Surveys, Johore Bahru.

10 Aug.,	1918.	Griffin, N. A. M., S. S. Police.
13 Jan.,	1916.	Gupta, Shiva Prasad, Nandansahu Street, Benares City, United Provinces, India.
12 —	1886.	Hale, A., Dachurst, Hildenborough, Kent, England.
15 July,	1907.	Hall, G. A., Alor Star, Kedah.
5 May,	1914.	Hall, J. D., Batu Pahat, Johore.
10 Aug.,	1918.	Hallaway, J. P., Gas Engineer, Singapore.
26 Jan.,	1911.	Hallifax, F. J., Johore Bahru.
12 April,	1915.	Hamilton, A. W. H., Central Police Office, Penang.
17 July,	1918.	Hampshire, Hon. A. K. E., Kuala Lumpur.
16 March,	1911.	Handy, Dr. J. M., St. Mary's Dispensary, 75, Hill Street, Singapore.
11 Sept.,	1895.	Hanitsch, Dr. R., Raffles Museum, Singapore. (Council, 1897, 1907-1909: Hon. Treasurer, 1898-1906, 1910-1911, 1914-1919: Hon. Secretary, 1912-1913).
3 June,	1909.	Harrington, A. G., Municipal Offices, Singapore.
5 Jan.,	1904.	*Haynes, A. S., Tampin, Negri Sembilan.
24 June,	1909.	Hennings, W. G., c/o Messrs. Mansfield & Co., Singapore.
26 Oct.,	1917.	Hereford, G. A., Province Wellesley.
6 June,	1910.	Hewan, E. D., c/o Messrs. Boustead & Co., Singapore.
—	1878.	Hill, E. C., The Manor House, Normandy near Guildford, England.
12 Feb.,	1918.	Hill, P. R., Evatt & Co., Singapore.
12 Oct.,	1911.	Hood-Begg, A., c/o Messrs. Guthrie & Co., 5, Whittington Avenue, London, E. C.
26 Oct.,	1917.	Hose, Dr. C., Britannia House, Hunstanton, Norfolk, England.
22 Nov.,	1897.	Hose, E. S., Kuala Lumpur.
A founder,	1878.	†Hose, Rt. Rev. Bishop G. F., Wyke Vicarage, Normandy near Guildford, England. (Vice-President, 1890-1892: President, 1894-1907).
7 Oct.,	1891.	Hoynck van Papendrecht, P. C., 7, Sweelinckstraat, The Hague, Holland.
20 Oct.,	1909.	Hubback, T. R., Pertang, Jelebu, Negri Sembilan.
20 Oct.,	1909.	Hughes, J. W. W., Kota Bharu, Kelantan.
15 July,	1907.	Humphreys, J. L., Trengganu.
27 Jan.,	1910.	Jackson, Col. H. M., R. E. O. C., No. 50 Labour Group. B. E. F., France.
21 Sept.,	1916.	James, Hon. F. S., C.M.G., Colonial Secretary, Singapore.
12 Feb.,	1918.	James, D., Banjermasin, Dutch Borneo.
27 Jan.,	1910.	Jamieson, Dr. T. Hill, 4, Bishop Street, Penang.
26 March,	1907.	Janion, E. M., c/o English, Scottish and Australian Bank, 38, Lombard St., London, E. C

10 Aug.,	1918.	Jansen, P., T. Pzn. Lebong Tandai, Post Ketaun, Benkoelen, Sumatra.
10 Aug.,	1918.	Jeavons, F. Clyde, Sione Estate, Batu Caves, Selangor.
1 Dec.,	1911.	Jelf, A. S., War Office, London.
—	1910.	Johnson, B. G. H., Telok Anson.
15 June,	1911.	Johnson, Hon. H. S. B., Limbang, viâ Labuan.
12 Feb.,	1918.	Jones, E. P., Fleet Paymaster, Fort Canning, Singapore.
27 Jan.,	1910.	Jones, H. W., Kuantan, Pahang.
17 Feb.,	1913.	Jones, S. W., Kuala Kangsar, Perak.
26 May,	1912.	Jones, Wyndham, Miri, Sarawak.
16 April,	1912.	Jones, W. R.
21 Sept.,	1916.	Kamaralzaman, Raja, bin Raja Mansur, Tapah, Perak.
10 Feb.,	1916.	Kellagher, G. B., c/o Crown Agents, Whitehall Gardens, London.
3 June,	1909.	Kemp, W. Lowther, c/o Messrs. F. W. Barker and Co., Singapore.
13 Jan.,	1913.	Kempe, John Erskine, Kuala Lumpur.
23 May,	1906.	Kinsey, W. E., Forest House, Seremban.
27 Jan.,	1910.	Kirk, Dr. J., Penang.
29 Jan.,	1900.	Kloss, C. Boden, The Museum, Kuala Lumpur. (Council, 1904-1908).
12 April,	1915.	Knight, Valentine, Raffles Museum, Singapore.
16 Feb.,	1914.	Lambourne, J., Castleton Estate, Telok Anson, Perak.
5 May,	1914.	Laville, L. V. T., Kelantan.
28 May,	1902.	†Lawes, Rev. W. G., Port Moresby, New Guinea.
5 Oct.,	1906.	Lawrence, A. E., Kuching, Sarawak.
29 Sept.,	1913.	Leicester, Dr. W. S., Kuantan.
22 March,	1917.	Lemberger, V. V., c/o United Engineers, Ltd., Singapore.
28 March,	1894.	*Lemon, Hon. A. H., C.M.G., Seremban. (Vice-President, 1916-18).
30 May,	1890.	Lewis, J. E. A., B. A., 698, Harada Mura, Kobe, Japan.
16 Aug.,	1915.	Lewton-Brain, L., Director of Agriculture, Kuala Lumpur.
20 May,	1897.	Lim Boon Keng, Hon. Dr. M.D., c/o The Dispensary, Singapore.
12 April,	1915.	Lim Cheng Law, Millview, Penang.
17 July,	1918.	Loh Kong Imm, Sepang-Tanah Merah Estate, Sepang, Selangor.
16 Feb.,	1914.	Lornie, J., Land Office, Singapore.
8 June,	1909.	Low, H. A., c/o Messrs. Adamson, Gilfillan and Co., Penang.
7 Oct.,	1918.	Lucy, Dr. S. H. R., P. C. M. O., Singapore.
27 Jan.,	1910.	Lupton, Harry, Bukit Mertajam, Province Wellesley.
26 June,	1907.	Lyons, Rev. E. S., 82, Isla de Romero, Manila.

10 Aug., 1918. Macalister, Dr. G. H., Medical School, Singapore.
3 June, 1909. McArthur, M. S. H., Kuala Lumpur.
23 Sept., 1897. McCausland, C. F., Port Dickson.
25 Feb., 1910. *MacFadyen, Eric, c/o Sports Club, London.
24 July, 1908. Mackray, W. H., Kuala Lumpur.
1 April, 1910. MacLean, L., Kuala Lumpur.
17 July, 1918. Madge, Raymond, Kuala Lumpur.
21 April, 1904. Mahomed, Hon. Dato, bin Mahbob, Johore Bahru, Johore.
8 Sept., 1903. Makepeace, W., c/o Singapore Free Press, Singapore. (Council, 1914-1916: Hon. Librarian, 1910-1912: Hon. Treasurer, 1909; Vice-President, 1917; Hon. Secretary, 1918-9).
15 April, 1908. Main, T. W., Cheng Estate, Malacca.
10 Feb., 1916. Mann, W. E., Hotel Pavillon, Samarang, Java.
12 Feb., 1902. Marriott, H., High Commissioner's Office, Singapore. (Council, 1907-1908, 1910-1913, 1915-1918; Vice President for Singapore,
24 June, 1909. Marsh, F. E., Municipal Offices, Singapore.
12 May, 1909. Marshall, Harold B., Bintang Estates, c/o Messrs. F. W. Barker & Co., Singapore.
15 July, 1907. *Marriner, J. T., Kuantan, Pahang.
25 July, 1918. Martin, T. A., Planters' Loan Board, Kuala Lumpur.
5 May, 1914. Martin, T. A., Messrs. Kennedy & Co., Penang.
5 Nov., 1903. Maxwell, Hon. W. George, C.M.G., Singapore. (Council, 1905, 1915: Vice-President, 1916—1918; President, 1919).
16 Dec., 1909. May, Hon. C. G., Acting Colonial Engineer, Singapore.
16 Feb., 1914. Mead, J. P., Forest Dept., El Obeid, Kordofan, Sudan.
7 Feb., 1910. Miller, T. C. B., Fairlie, Nassim Road, Singapore.
29 Sept., 1913. Mollett, H. B., Ipoh, Perak.
27 Jan., 1919. Morrison Library, Mitsubishi Building, No. 26, Marunonchi, Tokyo, Japan.
8 Sept., 1909. *Moulton, Major J. C., Fort Canning, Singapore. (Council, 1918-9).
11 Oct., 1915. *Mundell, H. D., c/o Messrs. Sisson and Delay, Singapore.
15 June, 1911. Munro, R. W., Morib, Selangor.
17 Feb., 1913. Murray, Rev. W., M.A., 1, Gilstead Road, Singapore.
10 Feb., 1916. Myers, Frank H., Asiatic Petroleum Co., Singapore.
22 March, 1917. Nagle, Rev. J. S., M.A., Singapore.
8 Sept., 1909. Nathan, J. E., Kuala Pilah.
25 Feb., 1910. Niven, W. G., 11, Derby Crescent, Kelvinside, Glasgow, Great Britain.

9 May,	1900.	Norman, Henry, Johore Bahru.
5 Jan.,	1906.	Nunn, B., Malacca.
26 Jan.,	1911.	O'May, J., Kuala Kangsar, Perak.
10 Feb.,	1916.	Ong Boon Tat, 29, South Canal Street, Singapore.
17 Feb.,	1913.	Overbeck, H., Holdsworthy, Liverpool, N. S. W., Australia.
2 Feb.,	1914.	Panyarjun, Samahu, The Royal State Railways Dept. Standard Gauge, 196, Hluang Road, Bangkok, Siam.
27 Oct.,	1908.	Parr, The Hon. C. W. C., Residency, Kuala Lipis, Pahang. (Vice President, F. M. S., 1919).
20 Oct.,	1909.	Peacock, W., England.
22 March,	1917.	Pears, R., c/o Messrs. F. W. Barker & Co., Singapore.
4 Jan.,	1910.	Peirce, R., Glasgow.
5 May,	1914.	Pepys, W. E., Pasir Puteh, Kelantan.
—	1878.	†Perham, the Ven. Archdeacon J., Chard, Somerset, England.
26 Oct.,	1917.	Perkins, D. Y., Drew and Napier, Singapore.
25 Feb.,	1910.	Pratt, Capt. E., Ystrad, Plymstock, Devon, England.
22 Jan.,	1912.	Price, William Robert, B.A., F.L.S., Pen Moel, Chepstow, England.
22 March,	1906.	Pringle, R. D., The Y. M. C. A. Headquarters, London.
5 Oct.,	1906.	Pykett, Rev. G. F., M. E. Mission, Kuala Lumpur.
3 May,	1915.	Raggi, J. G., Phlab Phla Jai Road, Bangkok, Siam.
21 Aug.,	1917.	Rattray, Dr. M., 10, Riverside, Malacca.
10 Feb.,	1916.	Rayman, L., Assistant District Officer, Bentong, Pahang.
27 Jan.,	1910.	*Reid, Dr. Alfred, c/o Crown Agents, Whitehall Gardens, London.
27 Jan.,	1910.	Reid, Alex., c/o Messrs. McAlister and Co., Singapore.
20 Oct.,	1909.	Richard, D. S.
15 June,	1911.	Richards, R. M., The Caledonia Estate, Province Wellesley.
18 April,	1918.	Ritchie, C., The Sagga Rubber Estate, Siliau, F. M. S.
27 Jan.,	1890.	†Ridley, H. N., C.M.G., F.R.S., 7, Cumberland Road, Kew Gardens, Surrey, England. (Council, 1894-1895: Hon. Secretary, 1890-1893, 1897-1911: Hon. Member, 1912).
26 Oct.,	1917.	Ridout, H. E. Major-General D. H., C.M.G., General Officer Commanding, S. S.
14 Sept.,	1911.	Robertson, G. H. M.
14 Aug.,	1912.	Robertson, J., c/o Messrs. Guthrie and Co., Singapore.

16 March, 1911.	Robinson, H., c/o Messrs. Swan and Maclaren, Singapore. (Council, 1916-19).
17 March, 1904.	Robinson, H. C., The Museum, Kuala Lumpur. (Vice-President, 1909; 1913).
10 Feb., 1916.	Rogers, A., Public Works Department, Province Wellesley.
22 Jan., 1896.	Rostados, E., Lunas, South Kedah. (Council, 1901).
1 March, 1897.	*Rowland, W. R.
12 Feb., 1918.	Russell, P. C., Swan and Maclaren, Singapore.
7 April, 1909.	Sanderson, Mrs. R.
10 Feb., 1916.	†Sarawak, His Highness The Raja of, Kuching, Sarawak.
— 1885.	†Satow, Sir Ernest M., Beaumont, Ottery St. Mary, Devon, England.
22 Jan., 1896.	Saunders, Hon. C. J., Official Assignee, Singapore. (Vice-President, 1910-1911, 1914-1915: President, 1916-1918).
17 March, 1904.	Schwabe, E. M., Cheras Estate, Kajang, Selangor.
27 Jan., 1910.	Scott, R., District Court, Singapore.
5 Oct., 1906.	Scrivenor, J. B., c/o Crown Agents, Whitehall Gardens, London.
26 March, 1888.	Seah Liang Seah, c/o Chop Chin Hin, Singapore.
12 April, 1915.	See Tiong Wah, c/o Hongkong and Shanghai Bank, Singapore.
12 Feb., 1918.	Sennett, C. W. A., War Trade Office, Singapore.
30 Jan., 1894.	Shellabear, Rev. Dr. W. G., D.D., c/o Board of Foreign Missions, 150, Fifth Avenue, New York City, U. S. A. (Council, 1896-1901, 1904: Vice-President, 1913: President, 1914-1915).
3 June, 1909.	Sims, W. A., c/o Commercial Union Assurance Co., Singapore.
22 March, 1917.	Shillitoe, G., Kuantan, Pahang.
20 May, 1912.	Smith, Prof. Harrison W., Massachusetts Institution of Technology, Boston, Mass., U.S.A.
27 Jan., 1910.	Song Ong Siang, M.A., L.L.M., c/o Messrs. Aitken and Ong Siang, Singapore.
17 July, 1918.	Stanton, Dr. A. T., Kuala Lumpur.
10 Nov., 1909.	Steadman, V., c/o Messrs. Swan and Maclaren, 5, Raffles Place, Singapore.
24 May, 1910.	Steedman, R. S.
27 Jan., 1910.	Still, A. W., c/o Straits Times, Singapore. (Council, 1914-1915).
13 Feb., 1917.	Stirling, W. G., Government Monopolies, Singapore.
3 May, 1915.	Strickland, Dr. C., Sungei Siput, Perak.
14 Sept., 1911.	Stuart, E. A. G., Alor Star, Kedah.

24 May,	1910.	Sturrock, A. J., Batu Gajah, Perak.
22 March,	1917.	Sumner, H. L., Inspector of Schools, Taiping, Perak.
26 Oct.,	1917.	Swan, W. L., Pondok Tanjong, Perak.
22 Jan.,	1912.	Swayne, J. C., Kuching, Sarawak.
12 Feb.,	1918.	Sykes, G. R., Import and Export Office, Singapore.
4 June,	1908.	Tan Cheng Lock, 59, Heeren Street, Malacca.
16 June,	1913.	Taylor, Lt. Clarence J., King's Own Yorkshire Light Infantry, 48th Street, Basrah, Mesopotamia.
26 Oct.,	1917.	Tennent, M. B., Eliot Vale House, Blackheath, London.
14 Aug.,	1914.	Tracy, F. D., c/o The Standard Oil Co., Penang.
23 Aug.,	1918.	Uda, Raja, Kuala Pilah, N. S.
18 April,	1918.	Valpy, G. C., Official Assignee's Office, Singapore.
14 Aug.,	1887.	van Beuningen van Helsdingen, Dr. R., 484/2, Bukit Timah Road, Singapore. (Hon. Librarian, 1914-1915).
3 June,	1909.	Ward, Hon. A. B., Kuching, Sarawak.
10 Feb.,	1916.	Watkins, Mrs. Legrew, c/o Messrs. Watkins & Co., Singapore.
21 Aug.,	1917.	Watson, J., Kuala Lipis.
13 Jan.,	1916.	Watson, J. G., Forest Department, Kuala Lumpur.
18 Oct.,	1916.	Watson, Dr. Malcolm, Klang, Selangor.
27 Jan.,	1910.	Weld, F. J., c/o Crown Agents, Whitehall Gardens, London.
15 July,	1907.	Welham, H., c/o The Straits Echo, Penang.
27 Jan.,	1910.	Whitehead, C. B., Police Office, Butterworth, Province Wellesley.
27 Jan.,	1910.	Williams, S. G., Municipal Offices, Singapore.
27 Jan.,	1910.	*Winkelmann, H., Malacca Street, Singapore.
24 Nov.,	1904.	Winstedt, R. O., (Vice-President, 1914-1916), Kuala Lumpur.
13 Nov.,	1918.	Wolde, B., Subang Estate, Batu Tiga, Selangor.
25 Feb.,	1910.	Wolferstan, L. E. P., The Residency, Malacca.
28 May,	1902.	Wolff, E. C. H., The Secretariat, Singapore.
4 June,	1908.	*Wood, E. G., Taiping, Perak.
16 June,	1913.	Wood, W. L., The Selborne Plantation Co., Reserve Estate, Sunkai, Perak.
21 Sept.,	1916.	Woollett, G. F. C., Klagaw, Labuk and Sugut District, B. N. B.
14 Sept.,	1911.	Worsley-Taylor, F. E., c/o Messrs. Vade and Co., Singapore.
12 April,	1915.	*Worthington, A. F., Teluk Anson, Perak.
5 May,	1914.	Wyley, A. J., Lebong Tandai, Benkoelen, Sumatra.

26 Oct., 1917. Yates, Major W. G., West Kent Regiment, Tanglin Barracks, Singapore.

26 April, 1916. Young, E. Stuart, Kinarut Estate, via Jesselton, B. N. B.

24 Nov., 1904. *Young, H. S., Bau, Sarawak.

RULES

of the Straits Branch

of the

Royal Asiatic Society.

I. Name and Objects.

1. The name of the Society shall be 'The Straits Branch of the Royal Asiatic Society.'

2. The objects of the Society shall be:—

(a) The increase and diffusion of knowledge concerning British Malaya and the neighbouring countries.

(b) the publication of a Journal and of works and maps.

(c) the formation of a library of books and maps.

II. Membership.

3. Members shall be of three kinds—Ordinary, Corresponding and Honorary.

4. Candidates for ordinary membership shall be proposed and seconded by members and elected by a majority of the Council.

5. Ordinary members shall pay an annual subscription of $5 payable in advance on the first of January in each year. Members shall be allowed to compound for life membership by a payment of $50.

6. On or about the 30th of June in each year the Honorary Treasurer shall prepare and submit to the Council a list of those members whose subscriptions for the current year remain unpaid. Such members shall be deemed to be suspended from membership until their subscriptions have been paid, and in default of payment within two years shall be deemed to have resigned their membership.

No member shall receive a copy of the Journal or other publications of the Society until his subscription for the current year has been paid.

7. Distinguished persons, and persons who have rendered notable service to the Society may on the recommendation of the Council be elected Honorary members by a majority at a General meeting. Corresponding Members may, on the recommendation of

two members of the Council, be elected by a majority of the Council, in recognition of services rendered to any scientific institution in British Malaya. They shall pay no subscription: they shall enjoy the privileges of members except a vote at meetings, eligibility for office and free receipt of the Society's publications.

III. Officers.

8. The officers of the Society shall be:—

A President.

Three Vice-Presidents, resident in Singapore, Penang and the Federated Malay States respectively.

An Honorary Treasurer.
An Honorary Librarian.
An Honorary Secretary.
Four Councillors.

These officers shall be elected for one year at the Annual General Meeting, and shall hold office until their successors are appointed.

9. Vacancies in the above offices occurring during any year shall be filled by a vote of majority of the remaining officers.

IV. Council.

10. The Council of the Society shall be composed of the officers for the current year, and its duties and powers shall be:—

(a) to administer the affairs, property and trusts of the Society.

(b) to elect ordinary and corresponding members and to recommend candidates for election as Honorary members of the Society.

(c) to obtain and select material for publication in the Journal and to supervise the printing and distribution of the Journal.

(d) to authorise the publication of works and maps at the expense of the Society otherwise than in the Journal.

(e) to select and purchase books and maps for the Library.

(f) to accept or decline donations on behalf of the Society.

(g) to present to the Annual General Meeting at the expiration of their term of office a report of the proceedings and condition of the Society.

(h) to make and enforce by-laws and regulations for the proper conduct of the affairs of the Society. Every such bye-law or regulation shall be published in the Journal.

11. The Council shall meet for the transaction of business once a month and other if necessary. Three officers shall form a quorum of the Council.

V. General Meetings.

12. One week's notice of all meetings shall be given and of the subjects to be discussed or dealt with.

13. At all meetings the Chairman shall in the case of an equality of votes be entitled to a casting vote in addition to his own.

14. The Annual General Meeting shall be held in February in each year. Eleven members shall form a quorum.

15. (i) At the Annual General Meeting the Council shall present a Report for the preceding year and the Treasurer shall render an account of the financial condition of the Society. Copies of such Report and account shall be circulated to members with the notice calling the meeting.

(ii) Officers for the current year shall also be chosen.

16. The Council may summon a General Meeting at any time, and shall so summon one upon receipt by the Secretary of a written requisition signed by five ordinary members desiring to submit any specified resolution to such meeting. Seven members shall form a quorum at any such meeting.

17. Visitors may be admitted to any meeting at the discretion of the Chairman but shall not be allowed to address the meeting except by invitation of the Chairman.

VI. Publications.

18. The Journal shall be published at least twice in each year, and oftener if material is available. It shall contain material approved by the Council. In the first number in each year shall be published the Report of the Council, the account of the financial position of the Society, a list of members, the Rules, and a list of the publications received by the Society during the preceding year.

19. Every member shall be entitled to one copy of the Journal, which shall be sent free by post. Copies may be presented by the Council to other Societies or to distinguished individuals, and the remaining copies shall be sold at such prices as the Council shall from time to time direct.

20. Twenty-five copies of each paper published in the Journal shall be placed at the disposal of the author.

VII. Amendments to Rules.

21. Amendments to these Rules must be proposed in writing to the Council, who shall submit them to a General Meeting duly summoned to consider them. If passed at such General Meeting they shall come into force upon confirmation at a subsequent General Meeting or at an Annual General Meeting.

Affiliation Privileges of Members.

Royal Asiatic Society. The Royal Asiatic Society has its headquarters at 22 Albemarle Street, London, W., where it has a large library of books, and MSS. relating to oriental subjects, and holds monthly meetings from November to June (inclusive) at which papers on such subjects are read.

2. By rule 105 of this Society all the Members of Branch Societies are entitled when on furlough or otherwise temporarily resident within Great Britain, and Ireland, to the use of the Library as Non-Resident Members and to attend the ordinary monthly meetings of this Society. This Society accordingly invites Members of Branch Societies temporarily resident in Great Britain or Ireland to avail themselves of these facilities and to make their home addresses known to the Secretary so that notice of the meetings may be sent to them.

3. Under rule 84, the Council of the Society is able to accept contributions to its Journal from Members of Branch Societies, and other persons interested in Oriental Research, of original articles, short notes, etc., on matters connected with the languages, archæology, history, beliefs and customs of any part of Asia.

4. By virtue of the afore-mentioned Rule 105 all Members of Branch Societies are entitled to apply for election to the Society without the formality of nomination. They should apply in writing to the Secretary, stating their names and addresses, and mentioning the Branch Society to which they belong. Election is by the Society upon the recommendation of the Council.

5. The subscription for Non-Resident Members of the Society is 30/- per annum. They receive the quarterly journal post free.

Asiatic Society of Bengal. Members of the Straits Branch of the Royal Asiatic Society, by a letter received in 1903, are accorded the privilege of admission to the monthly meetings of the Asiatic Society of Bengal, which are held usually at the Society's house, 1 Park Street, Calcutta.

Hindustani, Tamil, Sanskrit and other loan words in Malay.

By A. W. Hamilton.

In this paper I have collected a list of Malay words whose derivations have not been given in R. J. Wilkinson's Malay-English Dictionary, but all of which are to be found in any good Hindustani Dictionary with the exception of the few words I have marked 'Tamil.' When this list is taken in conjunction with those published already by R. O. Winstedt in this Journal, and the Hindustani derivations mentioned in R. J. Wilkinson's Dictionary and elsewhere; and it is borne in mind that practically all Malay words of Persian origin and a very large number of those of Sanskrit and Arabic origin are also to be found in Hindustani, it becomes an open question as to how far these words have been incorporated into Malay through the medium of Hindustani and not from their direct sources.

In case some of the Tamil and other words should not prove very familiar to some readers I should add that they are current in Penang which has a large admixture of Indian blood in its native Malay population, and has always had a very close connection with Southern India ever since it's foundation.

I am very much indebted to Mr. R. O. Winstedt for looking over this list and pointing out those words whose derivations have already been noted by Dutch authorities.

adu contest: reference to a tribunal.	*'adu* (Ar.) an enemy: foe.
[*madu*—a rival wife—derived from the same source].	
aleja a kind of cloth.	*ilâchâ* (H. Deccan) silk and thread cloth.
almari a wardrobe: a cupboard.	*almârî* (H. from the Portuguese '*almario*').
**amah* a nursemaid—especially Chinese.	*amah* (H. from Portuguese '*ama*'—a wet nurse).
**amil* the title of a government official in Riau.	*âmîl* (H. from Ar.) a collector of revenue; a ruler.
**ayah* a nursemaid—especially Indian.	*âyâ* (H. from Portuguese '*aia*'—a nurse).
andika descent; hereditary dignity.	*andhikâr* (Skt.) possession; rule; privilege; inheritance; a kingdom.

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	[*adikâr*—was the title of the chief minister of the Kandyan kings; and in S. India of a rural headman].
anggĕrka a long overcoat.	*angarkhâ* (Skt.) a coat; a gown.
**aria* to lower; to pay out rope.	*aria* (H.).
arwa a saw-edged knife of Indian origin.	*ârâ* (H.) a saw; a shoemakers knife or awl.
auta bluff; exaggeration; boasting.	(Tamil).
basi stale; musty.	*bâsî* (H.).
baldi a bucket.	*bâltî* (H. from Portuguese '*balde*').
baruah a pimp.	*bharûa* (H.).
bangsi a flute.	*bansi* (Skt.).
baniyan a singlet; a banyan.	*bâniyân* (H.) underclothing of elastic cotton.
bangsat position of a rogue or vagabond; a pauper.	*badzât* (H. from Persian) evil race; a low fellow; a bad lot; blackguard.
**bang* dry leaves and stalks of hemp used to cause intoxication by smoking or eating.	*bhâng* (H.) the Arabic "*Hashîsh.*"
boya a buoy.	*boya* (H.).
bakdul a bearing rein.	*bâgdor* (H.) a halter; a long rein for leading horses.
bangĕla a bungalow.	*banglâ* (H.).
belen a wooden rolling-pin for pastry.	*belan* (H.).
**bel* a tree bearing a hard, green, round fruit, like a big orange; the skin is used as an astringent.	*bel* (H. Bengal) the tree Aegle marmelos.
bhagi division; apportionment.	*bhâg* (Skt.) share; lot.
biji a seed; a grain: a pip.	*bij* or *vij* (Skt.) the seed of plants; cause; origin.
**bĕriani* 'nasi bĕriani' is a rice dish of rice and meat mixed up together usually only eaten on festive occasions (Penang).	*biryânî* (P.).
bahana noise; confused murmur.	*bhanak* (Skt.) a low sound; hum of insects.
bērahi love; in love.	*virahî* (Skt.) suffering the pangs of love when at a distance.

**chaklâ Lorong Chaklâ* in Penang is Argyll Road as being the site of some old brothels, now no longer.	*chaklâ* (H.) a brothel.
chachar small pox.	? *chechak* (H.).
**cha* tea.	*cha* (P.).
**chapras* a badge plate; clasp; buckle (Penang).	*chaprâs* (H.).
chandi restive of a horse (Wilkinson). stubborn of a horse; incorrigible (Penang).	(Tamil.
ii. forward of a woman (Wilkinson). a street corner prostitute (Penang).	(Tamil) a street corner.
chapal a leathern sandal.	*chappal* (H.) a slipper.
**chota* a Policeman's baton (Penang).	*sota* (Punjabi) a stick; a baton.
**chokĕra* a Tamil boy; a youngster (Penang).	*chhokrâ* (H.) a boy; a youngster.
chokmar a club; a mace.	*chumak* (P.).
chĕmpa or *champa* (Penang) is called *bunga chĕmpaka* elsewhere.	*champa* (Skt.).
chĕrutu a cheroot; a cigar.	*shuruttu* (Tam.), *churuttu* (Malayalam) a roll of tobacco.
chili a chilli.	*chili* (Anglo-Indian word of South American origin.
dap a tambourine.	*daf* (P).
daman the sheet of a sail.	*dâman* (P.).
dabus a puncher with a spike used for inflicting wounds by persons in a religious frenzy.	*dabûs* (Ar.) a club; a mace.
dam a whiff when smoking hemp.	*dam* (P.) a breath.
**daba* an ammunition pouch.	*dibbâ* (H.) or *daba* (Punjabi) a box; a pouch.
**dal* split pease—much eaten by Indians.	*dâl* (H. and Skt.).
diyan a candle.	*diyâ* (H.) a lamp.
**dol* an Indian drum.	*dhol* (H.).
**dubash* a general agent for provisioning ships.	*dubhâshiya* (Skt.) an interpreter; a broker; a general agent. [Anglo-Indian '*dubash*'].

*_dura_ distant (in literature).	_dûr_ (Skt.).
děkat near.	? _nikat_ (Skt.) near; about.
děra chastisement.	_dirra_ or _durrah_ (Ar.) a leathern scourge inflicted for religious omissions.
ěrti meaning; intention.	_arth_ (Skt.) meaning; interpretation.
*_gari_ a gharry; a cart; a carriage.	_gârî_ (H.).
*_gadi_ a handcart (Penang).	_gaddi_ (Punjabi).
ganja Indian hemp, the flowering shoots of which are used as an intoxicant.	_gânjâ_ (H., Skt.).
gaharu agila-wood.	_aguru_ (Skt.) wood of aloes.
ganda number of times or occasions on which a thing is represented or reappears.	_gâna_ (H.) time or fold _i.e. panj gâna_ five fold.
gala-gala a mixture of resin and pitch for caulking.	_gugal_ (H.) _guggula_ (Skt.) a resin; a species of bitumen much used for painting the bottoms of ships.
*_galis_ braces.	_gâlîs_ (H. from English 'gallows' a pair of braces.
gawai a topsail.	(H. from Portuguese '_gavea_').
*_ghabra_ to be alarmed; agitated; perturbed.	_ghabrâ_ (H.).
gobar gloomy; overcast; darkness.	_ghubâr_ (Ar.) dust; vapour.
*_gobar_ or _ghobar_ rumour noised abroad; a sensational report.	_gohâr_ (H.) tumult; uproar; alarm (or from _ghubâr_ Ar.).
*_goli_ a marble.	_golî_ (Skt.) a pill; bullet.
goni a sack.	_gonî_ (H. from Skt. _goni_).
goha a cave.	_guhâ_ (Skt.).
gusar anger.	_gussâ_ (H.).
gělěcha light sleeping mattress.	_gâlîcha_ (P.) a small carpet.
hat or _had_ as far as; up to.	_hadd_ (Ar.) a boundary; limit.
*_hargari_ handcuffs (Penang).	_hath_ (Skt.) a hand, and _karî_ (H.)—a fetter; a ring.
*_hasil 'tali hasil'_ in Singapore is a rope used as a winning post, etc.	_hansil_ (H. from English 'hawser).

hebah a gift.	*hiba* (Ar.).
hĕndol a cradle; a sling.	*hindol, hindola* (Skt.).
**istrika* or *streka* a smoothing iron.	*istrî* (H.) or from Dutch '*strijken*'?
jati true; real; pure.	?*zâtî* (Ar.) innate; essential; natural as opposed to *sifâtî*—acquired.
jala a casting net.	*jâlâ* (Skt.) a net; a cobweb.
jĕmpana a state carriage or litter for ladies of the court.	*jânpân* (H.) a sedan chair; a portable chair for ladies.
jalibot a jolly boat.	*jâlîbot* (H. from English).
jĕntĕra a wheel; motion.	*jantr* (Skt.) an instrument; engine.
jantur sorcery.	*jantr* (Sk.) conjuring; juggling.
**julap* a purge.	*jullâb* (Ar.).
kanji I. thick rice gruel.	*kânjî* (H.) I. water in which rice has been boiled; slops for invalids, (J. R. A. S. S. B. No. 76).
* II. starch.	II. starch (from Tamil '*kanshi*' boilings.
**kanjaus* punishment cells on 'bread and water'—Police.	*kanjihaus* (H.) 'cells' in a regiment from 'kanji' which was the prisoners diet; and the English word 'house.'
kapa nervous trembling.	*kap* (Skt.) to shiver; to tremble.
kaya wealth.	*mâya* (P.) wealth; money; capital.
kari curry.	*kârî* (H. from the Tamil for 'sauce').
kalai to scrape and tin pots.	*kalai* (Ar.) the tinning of vessels.
kamĕra a cabin.	*kamra* or *kamarâ* (H. from Portuguese).
kacha glass.	*kâch* (Skt.).
**kaskas* poppy seeds.	*khaskhas* or *khashkhâsh* (H. Guzerati).
**kartus* a cartridge (Perak).	*kârtûs* (H. from English 'cartouch').
**kawad* or *kawat* drill; military exercises.	*kawâ'id* (Ar.).
kalpat caulking.	*kâlâpatti* (H.), *kâlâfat* (Ar.).

kanjus or *gajus* the cashew nut.	*kâjû* (H.) from South American 'acajow.'
kimkha or *kingkap* a rich cloth fabric.	*kîmkhwâb* (H. from P.) Silk brocade worked with gold and silver flowers.
**kĕrabat* kin (*kaum kĕrabat*).	*karâbat* (Ar.) consanguinity.
**kĕdah* an elephant enclosure or trap.	*khedâ* (H. Bengal).
kĕlisa a church.	*kalîsa* (H. from the Greek).
kĕrul a curl.	*kurul* (Skt.) a curl; lock of hair.
**khĕsai* a butcher.	*kasâî* (Ar.).
kĕrat a measure of weight for diamonds.	*kîrât* (Ar.) a carat; $\frac{1}{24}$ oz.
**korma* meat stewed in a rich gravy of coriander, onions etc., but no chillis.	*korma* (H.).
koja a water vessel.	*kûza* (H. from Persian) an earthenware water vessel.
kĕndi a water vessel with a spout.	*kindi* (Malayâlim) a vessel like a coffee pot without a handle used to drink from in Malabar.
kobis a cabbage.	*kobî* (H.).
kodi or *koria* a score; twenty.	*korî* (H. from Tamil).
kĕtor a spittoon.	*katora* (H.) a brass bowl; a cup.
kutĕri a cabin in an Arab vessel.	*kothri* (H.) a room; a chamber.
kopiyah a cap.	*kaffizah* (Ar.) a square kerchief of cotton and silk worn on the head as a hood and retained by a black band.
**lak* sealing wax.	*lakh* (Skt.).
ladu rice flour cakes sugared, in moulds.	*laddû* (H.) a sweetmeat; a ball of flour fried in oil with sugar.
ladam a horse shoe.	(Tamil).
lawak joking; jesting.	*lâwa* (P.).
laba profit.	*lâbh* (Skt.).
lepa to plaster; to besmear.	*lip* (Skt.).
lela beloved; darling.	*laila* (Ar.) a beloved woman in general.
lihat to see.	*lihâz* (Ar.) to observe; a look; view.
**los* an almond.	*lauz* (P.).

loba covetousness.	*lobh* (Skt.).
**marmar* marble.	*marmar* (H. from Greek).
mama or *mamak* uncle; a title of respect.	*mâmâ* (Skt.).
mamu do.	*mâmû* (Skt.).
**mami* aunt (Penang).	*mâmî* (Skt.).
**mandom* i.e. *kuda mandom* (Penang) a useless broken down horse; worthless.	(Tamil).
**maruas* a small hand drum to accompany a '*gambus.*'	(Ar.).
**mambu* the 'nim' tree much grown by Klings who use the leaves medicinally and eat the fruit and flowers.	(Tamil).
matab blue lights; Roman candles.	*mahtâb* (P.) a kind of fireworks.
malai or *mali* an aigrette; a flower worn in the hair. '*male*' in Penang is a garland of flowers, and '*male tangan*' a bouquet.	*male* (Tamil) a garland.
mĕruwah self respect; shame. *hilang mĕruwah*—to lose one's dignity.	*marûah* (Ar.). masculine; manly; manhood.
**mĕrtabak* a meat omelette much in vogue in Penang.	(Ar.).
mĕmpĕlam the mango.	*mânpalam* (Tamil).
mĕnatu a laundryman.	*mainato* (Tamil).
mitai a kind of cake.	*mithâî* (Skt.) a sweetmeat.
muka a face.	*mukh* (Skt.) the mouth; face.
mula commencement.	*mûl* (Skt.) origin; root.
mota a coarse sail or sack cloth.	*motâ* (H.) thick; coarse.
malas lazy.	*alas* (Skt.) laziness; sloth.
nanas a pineapple.	*anânâs* (H. from Portuguese).
naracha a sensitive balance.	*narjâ* (H.) small scales.
nira water; sap; fresh juice of palms.	*nîrâ* (Skt.).
nidĕra or *nyĕdar* sleep; sound of sleep.	*nidra* (Skt.) sleep.
nonah, '*buah nonah*' bullock's heart fruit.	Native name for this fruit in the West Indies whence it was introduced (Anona Reticulata).

nischaya certain; inevitable.	*nischai* (Skt.).
nyior a coconut.	? *nâriyar* (Skt.).
**pardah* a cloth screen; a curtain; an awning.	*parda* (P.).
panus a candle bracket.	*fânûs* (Ar.) a candle shade; a lantern.
panja the figure of a hand used at Muharram.	*panja* (P.).
pinggan a dish; a plate.	*pinjân* (P.) a porcelain dish.
**piru, 'ayam piru'* a guinea fowl (Penang).	*perû* (H.) usually applied to a turkey.
pĕrĕli to deceive; to tease (Penang).	(Tamil).
pachĕri, pachĕli a method of cooking brinjals, pineapples, etc. with sugar and gravy and eaten as sambals.	(Tamil.
**parwah* care; anxiety; concern (Singapore).	*parwâh* (P.).
para a sentry; beat duty (Penang).	*pahrâ* (H.) a sentinel; tour of watch.
palkah a hatch.	*phalka* (H.).
patĕri solder.	*patra* (H.).
**pariah* a low caste person (Penang).	*paraiyar* (H. and Tamil) a low caste of Hindu.
**pagri* a scarf round a hat (Penang).	*pagri* (H.).
paltu a deputy.	*fâltû* (H.) spare; surplus; auxiliary; assistant.
pipa a barrel; a cask.	*pîpâ* (H. from English a pipe).
pĕchakari a syringe.	*pichkari* (H.).
pĕrcha a rag; a piece of cloth.	*parcha* (P.) a fragment; a piece; a scrap of cloth.
putu a generic name for cakes of *pulut* made in moulds.	(Tamil).
pĕtĕras pride; arrogance.	(Tamil).
puncha loose end; tail; extremity.	*pûnch* (Skt.) a tail.
**ponen* impotent (Penang).	(Tamil).
**pokĕri* a profligate useless person; a blackguard (Penang).	(Telegu).
**peon* an orderly; a messenger; a 'Policeman' when the	*peon* (Portuguese).

force was first started, the term is still used for men on 'Police Service' in South India.	
*_pĕrata, roti pĕrata_ unleavened bread of flour and ghee.	_parâthâ_ (H.).
pĕrchaya to trust; believe; confidence.	_pratyaza_ (Skt.).
pĕruwan the yard of a ship.	_parwân_ (H.).
pĕrum a sounding lead.	_purum_ (H. from Portuguese '_prumo_').
pĕndekar a champion; a professional fighter.	_panikar_ or _panikan_ (Malayalam) a fencing master.
rasa taste; flavour.	_ras_ (Skt.).
ranggi spruce; shewing off.	(Tamil).
rĕbana a musical instrument.	_rabâna_ (H.).
reja leavings; bits left over.	_reza_ (P.) scrap; piece; bit.
*_sahur_ the meal taken before dawn during the fast of Ramthan.	_sahûr_ (Ar.).
sanak kindred.	? _sanad_ (Ar.) a relation; connexion.
sarap money changer; shroff.	_sarrâf_ (Ar.).
sas the crupper of a saddle.	_sâz_ (H.) harness.
*_sauku_ a whip (Penang).	_sauku_ (Tamil).
sita sodden of food.	_sîthâ_ (Skt.) insipid; tasteless.
siyasat government.	_siyâsat_ (Ar.).
siyar to stroll about.	_saiyâr_ (Ar.) wandering; taking the air.
*_siti_ a whistle.	_sîtî_ (H.).
*_shok_ pleasurable; in transports of delight.	_shauk_ (Ar.) desire; gaiety; inclination; love.
*_stan_ reserve duty, as in the Police (Penang).	_sthân_ (H.) place; situation; station.
*_suji_ a porridge of meal for infants, or as a sweet pudding.	_sûjî_ (H.) meal; flour made from the heart of wheat.
sutli coarse thread for canvas.	_sût_ (Skt). thread; yarn.
*_sule_ rheumatic pains and swellings (Penang).	(Tamil).
sĕrigala a jackal.	_shighâl_ (H.).
sĕtĕru an enemy.	_shatru_ (Skt.).
sĕmandar a salamander.	_samandar_ (Ar. and P.).
sĕrang a petty officer.	_sârang_ (H.) a chief lascar.

taman a garden pleasaunce.	*chaman* (P.) a garden plot; a parterre.
tapa asceticism.	*tap* (Skt.) prayer; penance.
**tabla* a small tambourine (Penang).	*tabla* (Ar.).
tala a padlock.	*tâlâ* (Skt.) a lock.
tala in harmony; to tune.	*tâl* (Skt.) time in music; chime.
tambur a drum.	*tambûr* (H.).
**toti* a scavenger; a sweeper.	*totti* (H. Madras).
tĕmbakau tobacco.	*tambâkû* (H. from Portuguese 'tabaco').
tĕrpal a tarpaulin; a waterproof apron.	*turpal* (H. from English tarpaulin').
tĕmbosa or *sĕmbosa* a puff; a pastry with meat filling.	*sambosa* (P.) pastry of minced meat.
tĕringket a square sail.	(H. from the Portuguese '*triquete*').
**tal* the palm and fruit of Borassus flabelliformis (Penang pronunciation '*tai*').	*tal* (Skt.).
**tib* a treatise on medicine or magic; astrological formulas.	*tibb* (Ar.) medicine; magic.
tingkal borax.	*tinkâr* (H. from Skt.) Anglo-Indian '*tincall*').
tangki a tank.	*tangki* (H. from Portuguese '*tanque*').
ujar utterance; saying.	*uchchâr* (Skt.).
watan native place; home.	*watn* (Ar.).

Note I. The derivations of *male, mula, nira, lepa, kodi,* (Tamil), *guha, ganda* (Skt.); and of *tala* (a chime), *sĕrigala, sĕtĕru, rasa, pĕrchaya, pinggan* (Tamil), *sĕmbosa, naracha, nidĕra, muka, kacha, gaharu, jati* (Skt.), *champa* have been previously given by Van der Tuuk, and van der Wall so that my only excuse for reprinting them is that the derivations were arrived at independently and are not given in R. J. Wilkinson's Malay Dictionary.

Similarly the derivations of *istri, lak, loba, jala, khĕsai, kawaid, tĕringket, gawai, pĕrum,* are given in F. A. Swettenham's English and Malay Vocabulary but without quoting the words from which they are derived.

Note II. * Not given in R. J. Wilkinsons Malay English Dictionary.

Note III. Abbreviations Skt. Sanskrit.
P. Persian.
H. Hindustani.
Ar. Arabic.

New Genera and Species of Braconidae, Mostly Malayan.

By D. T. Fullaway,
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In the course of a search for natural enemies of the cane borer (*Rhabdocnemis obscura*), conducted by the Hawaiian Sugar Planters in the years 1906-1911, an extensive collection of insects was made by Mr. Frederick Muir, field entomologist on the Planters' Experiment Station staff, as well as by the late Frank W. Terry, assistant entomologist, who also had part in the field work. The *Braconidae* from this collection were referred to the writer for study, and the present paper describes some of the new genera and species appearing in the collection, the types of which remain in the H. S. P. A. Experiment Station collections, Honolulu.

Sub-fam. BRACONINAE.

Platybracon distinctus, n. sp.

♀ 10 mms. long. Ochraceous, depressed, head and thorax smooth and polished, abdomen coarsely rugose, hairy. Head cubical, very wide and flat on top, widely extended behind the eyes, ocelli arranged in an equilateral triangle anteriorly on the vertex, the enclosed space black, the members removed from each other about 1 diameter, from the eye and occipital margin about 8, front excavated, with a median longitudinal furrow, antennal sockets close to eye margin, tuberculate and margined, antennae filiform, 53-segmented, long as the body, black, segments 1 and 2 stout, the 1st with denticulate apical margin, face short and wide, slightly receding, a semicircular, medially carinate plate protruding above foveate beneath, mandibles stout, cheeks moderate but postgenae well developed, palpi filamentous. Thoracic notum flat, metanotum with faint median longitudinal carina, upper half of metathoracic pleurae lying in dorsal plane, mesopleurae produced flatly on the venter. Abdomen short ovate, 1st abdominal segment shorter than wide posteriorly, raised in the middle and longitudinally striate, broadly flat on the sides, longitudinally striate within, smooth nearer the edges, 2nd and following segments transverse, 2nd with a raised bicarinate longitudinal middle piece, extending from the anterior margin half the length of the segment, 2nd, 3rd and 4th with a broad oblique crenulate furrow from the anterior margin at lateral fourth to middle of lateral margin, 2nd and 3rd undivided except by a broad and deep crenulate furrow, 3rd and 4th with an edge on the posterior margin smooth and polished, ovipositor as long as the body, the valves black and hairy. Legs moderately slender and hairy. Front wings with moderately wide lanceolate stigma, 1st abscissa of the radius one-half the 1st cubital cross-vein, 2nd cubital cell nearly three times as long as wide and with parallel sides, 1st discoidal cell petiolate, nervellus interstitial, the recurrent nervure entering the 1st cubital cell, both the wings amber brown basally, dark fuscous brown apically from the basal nervure with the exception of a hyaline streak extending from the base of the stigma to the middle of the wing.

The ♂ is without a conspicuous facial plate and smaller.

Hab. Amboina. Collected by F. Muir. Described from 4 ♀ ♀ and 1 ♂ specimens.

Sub-fam. DORYCTINAE.

Pedinotus javanus, n. sp.

♂ 4.5 mms. long. Black, the antennal scape and pedicel, base of mandibles and the legs excepting the mid and hind femora outwardly, the front tibiae basally, mid and hind tibiae medially and the hind tarsi, ochraceous, the palpi, tegulae, mid and hind tibiae basally pallid; rugulose and hairy, head with frontovertex smooth and polished and naked, median lobe of mesonotum, propodeum and basal abdominal segment particularly coarsely reticulately sculptured.

Head quadrate, very convex, the temples full, front excavated, ocelli at posterior margin arranged in an equilateral triangle, the members about 2 diameters apart, about 4 from the border of eye and fully 6 from the occipital margin; antennae on the anterior margin, the sockets slightly elevated, separated from the border of eye by only half as much as from each other, filiform multiarticulate, as long as the body, 1st and 2nd joints stout, anterior angles of clypeus foveate; mandibles short, stout and sharply pointed; cheeks only half as wide as postgenae, which are punctate. Prosternum in advance of pronotum, which is fairly wide, widening on the pleurae and concave medially; the mesonotum, scutellum and metanotum are flat, lying all in the same plane, the median lobe of mesonotum depressed in front, parapsidal grooves confluent, more or less effaced above, scutellum smooth and polished, very finely punctate, two large, shallow foveae basally, postscutellum with a circular carina medially froming a fairly deep fovea at apex of scutellum, which is hairy, three indistinct short longitudinal carinae on metanotum, the pleurae convex; abdomen slender, as long as head and thorax together, depressed in front, corbiculate apically, 1st segment 3 times as long as wide at apex, 2nd and 3rd solidly joined, together almost as long as 1st, the brown, double curved punctate furrow marking the line of separation nearer apical than basal margin, 2nd segment with anterior angles separated by other brown, curved, punctate furrows, and divided into three scutiform areas by a broad median longitudinal groove which divides a short distance from apical margin, the two branches curving outwardly and joining the lateral furrows near base; 4th and following segments transverse, 1st, 3rd, 4th and 5th tergites with the apical margins polished, 6th and 7th tergites also polished. Legs slender, the coxae and femora short and stout, the former truncate, the latter flattened, especially the hind femora, the tarsi a little longer than tibiae. Wings long and slender, stigma lanceolate, radius arising before the middle and reaching tip of wing, 1st abscissa less than half the length of 2nd, 2nd cubital cell about 3 times as long as wide, parallel-sided, recurrent nervure interstitial, nervellus postfurcal, subdiscoidal joining discoidal near lower angle. Radius in hind wing nearly effaced.

Hab. Roban, Java. 1 specimen. Collected by F. Muir.

Ischiogonus malayensis, n. sp.

♀ 8 mms. long. Head, prothorax and mesothorax ochraceous, metathorax and abdomen black, abdominal sternites 1 to 3 luteous, the color extending on to the dorsum narrowly at the sides.

Head, smooth, polished, cubical, rather convex, temples rounded, eyes bulging slightly, front excavated, ocelli on anterior margin of vertex, arranged in an isosceles triangle, the anterior angle of which is obtuse, the lateral members a little closer to each other than to the border of the eye, the occipital margin about three times as far off; antennae placed in large oval sockets close to the border of the eye, filiform, joints 1 and 2 stout; face above clypeus transversely aciculate and hairy; mandibles stout, short, curved and acutely pointed at apex; cheeks less than one-half the width of postgenae. Pronotum and pleurae concave medially, the concavity costate; mesonotum trilobed, the median lobe especially bulging, parapsidal furrows costate and indistinct beyond the middle, the lateral lobes being separated by a broad, shallow bicarinated depression or furrow, pleurae striate above, the posterior margin marked by a costate furrow; disc of scutellum triangulate, bifoveate basally and depressed at sides; metanotum and pleurae coarsely reticulately rugose, the notum biareolate and smooth basally. Abdomen elongate ovate, 1st segment less than twice as long as wide at apex, 2nd and 3rd solidly joined, quadrate, 4th and following segments transverse, 1st segment longitudinally bicarinate, the carina strongly raised at base; between the carinae the surface is longitudinally striate, outside reticulately rugose, 2nd tergite and the broad furrow separating 2nd and 3rd longitudinally striate, a narrow marginal area on the sides of both tergites finely striate throughout and separated from the middle by an inconspicuous furrow; the posterior margin of tergites 3 to 6 and 7 and 8 completely smooth and polished; anteriorly the surface is very finely rugulose. The ovipositor is a little longer than the abdomen, the legs slender and hairy, coxae truncate, hind femora short and rather flat. The wings are a little fuscate, long and slender, the stigma lanceolate, 1st abscissa of radius about half the length of 2nd, the 2nd cubital cell twice as long as wide and parallel-sided; recurrent nervure entering the 1st cubital cell, nervellus postfurcal, subdiscoidal joining the discoidal below the middle.

Hab. Malay Peninsula. One specimen. Collected by F. Muir.

Ischiogonus fijiensis, n. sp.

♀ 5.5 mms. long. Ochraceous, the eyes, flagellum, tips of mandibles, ocellar space, base and apex of sheath of ovipositor, abdomial tergites beyond 1st and sternites beyond 4th black, the palpi, basal abdominal segment, 2nd, 3rd and 4th sternites (and a narrow stripe extending to the dorsum) pallid. Smooth and shining, the head polished, cubical, convex, the temples rounded, eyes bulging slightly, front flat, ocelli on anterior margin of vertex, arranged in an isosceles triangle, the anterior angle of which is obtuse, the lateral members more than twice as far from border of eye, about four times as far from occipital margin, as from each other; antennae placed in circular sockets close to the border of eye, filiform, joints 1 and 2 stout; face transversely aciculate and hairy, clypeal foveae conspicuous; mandibles stout, short, curved and acutely pointed at apex; cheeks not as wide as postgenae. Pronotum and pleurae concave medially, the concavity costate, mesonotum trilobed, the parapsidal furrows deep, disc of scutellum flat, triangulate, the apex truncate, four oval foveae at base; metanotum flatly convex and rugose, biareolate at base, the areolae rather coarsely punctate though smooth at the base and separated by a short carina with a punctate double line on either side. Abdomen elongate ovate, 1st segment about as long as broad at apex, following segments transverse, 2nd and 3rd solidly joined, with the anterior angles of the tergites separated by a furrow, tergite of 1st segment, 2nd basally, the lateral angles and furrow between 2nd and 3rd, logitudinally striate, the rest of the abdomen smooth and polished, 5th, 6th, 7th and 8th tergites with a transverse fascia of hairs; ovipositor as long as the abdomen; legs slender, coxae truncate, femora short and somewhat flattened, especially the hind femora. Wings dark fuscous, long and slender, stigma lanceolate, 1st abscissa of radius a trifle more than half the length of 2nd, 2nd cubital cell nearly twice as long as wide and parallel-sided, recurrent nervure entering 1st cubital cell, nervellus postfurcal, subdiscoidal joining the discoidal below the middle.

Hab. Fiji. Two specimens. Collected by F. Muir.

Sub-fam. RHOGADINAE.

Colastes javanus, n. sp.

♂ 5 mms. long. Head and thorax smooth and shining, only the metanotum rugose, abdomen dorsally rugoso-striate. Ochraceous, eyes, ocellar space, parapsides, metanotum and abdominal tergites basally infuscated.

Head transverse, rather wide and thick in the middle, eyes bulged and slightly emarginate within, ocelli arranged in an equilateral triangle on the vertex, the members large, less than one diameter from border of eye, a median furrow behind reaches occipital margin, front flat and inclined to the face, which is vertical but slightly receding, antennae broken, joints 1 and 2 stout, separated at base and fairly close to margin of eye, the sockets large, almost tuberculate, mandibles stout, cheeks less than half short diameter of eye and separated from face by a distinct furrow. Pronotum fairly wide, the pleurae much wider and concave, with a costate furrow in the concavity, mesonotum convex, parapsidal grooves complete, converging apically in a short longitudinal furrow, middle lobe bulging, apical margin of scutellum and postscutellum angulate and carinate, disc of the former triangular, a large shallow fovea at base and wide shallow costate grooves laterally, metanotum with two large semicircular areolae basally. Abdomen elongate oval, depressed, 1st segment longer than wide, 2nd and 3rd solidly joined, together longer than wide, a shallow depression beyond the middle marking their separation, 4th, 5th and 6th transverse, 7th and 8th small and inconspicuous, hind margin of all the segments swollen and carinate.

Wings hyaline, stigma broad lanceolate, radius emerging before middle, 1st abscissa less than half 2nd, recurrent nervure interstitial, subdiscoidal joining the discoidal below the middle and the latter broken, nervellus postfurcal.

Hab. Buitenzorg, Java. One specimen. Collected by F. Muir.

Heterogamoides, gen. nov. (type *muirii*).

Eyes and ocelli large, the latter hardly farther from occiput than margin of eye, cheeks small, palpi flat but not expanded, parapsidal grooves indistinct, transverse groove at base of scutellum sex-foveate, metanotum convex and medially longitudinally carinate, abdomen elongate oval, depressed, 1st segment longer than wide, 2nd quadrate, 3rd and following transverse, tergites medially longitudinally carinate and longitudinally striate to middle of 3rd segment, transverse impression between 2nd and 3rd quite distinct, ovipositor short, stigma of front wings broad lanceolate, radius emerging from middle, 1st and 2nd abscissae subequal, 2nd cubital cell more than twice as long as wide and parallel-sided, recurrent nervure entering 1st cubital cell, nervullus nearly midway between basal and recurrent on median nervure, subdiscoidal joining discoidal below middle, radius in hind wing distinct. Differs from *Rhogas* in length of 1st abscissa of the radius.

Heterogamoides muirii, n. sp.

♀ 7.5 mms. long. Rugulose and hairy; ochraceous, eyes, flagellum, ocellar space, hind tibiae from middle, tarsi and valves of ovipositor black.

Head smooth on vertex, the front polished behind antennae, eyes emarginate within, ocelli elliptical, arranged in an equilateral triangle on vertex, less than half a diameter apart, front inclined to face, which is vertical but slightly receding, antennal sockets large, joints 1 and 2 stout, flagellum dull and hairy, face longer than wide, cheeks short. Pronotum fairly wide, pleurae wider, concave, a costate furrow in concavity, mesonotum convex, parapsidal grooves indistinct, pleurae and sternae confluent, hind margin of scutellum polished, a semicircular, sexfoveate groove at base and wide oblique grooves laterally, metanotum flatly convex, medially longitudinally carinate, spiracle round and small. Abdomen depressed, long elliptical, rather obovate, 1st segment longer than wide, 2nd quadrate, 3rd and following transverse. Ovipositor short.

Wings hyaline, stigma and veins ochraceous, a fuscous spot below the parastigma, 2nd cubital cell much longer than wide, 1st and 2nd abscissae of the radius subequal, nervellus postfurcal.

Hab. Buitenzorg, Java. One specimen bred VII-07 from spiny lepidopterous pupae (376), F. Muir.

Macrostomion malayensis, n. sp.

♀ 5.5 mms. long. Ochraceous, antennae, legs, palpi and tegulae paler, the parapsides, pleurae, metanotum, hind coxae, abdominal tergites 1 and 2 and remaining tergites basally infuscated; head and thorax smooth and shining, finely punctate, abdominal tergites longitudinally striate.

Head transverse, eyes slightly bulging, ocelli large, arranged in an isosceles triangle on the vertex, the anterior angle acute, the anterior member about 1 diameter from lateral, which are still further removed from eye margin but less than half a diameter apart, a median longitudinal furrow on the vertex reaches from the ocellar area to the occipital margin; front excavated, the sides of the excavation margined and the ocellar area surrounded by a shallow furrow or depression; antennae filiform, multiarticulate, 1st and 2nd joints stout; face fairly wide and convex, cheeks narrow. Pronotum narrow, pleurae wider, concave, costate in the concavity; mesonotum bulging, the anterior face of the middle lobe almost perpendicular, parapsidal grooves distinct, merging in a wide medial longitudinal furrow apically, pleurae with an indistinct costate furrow below; scutellum triangular, flatly convex on the disc, two highly polished, indistinctly divided, shallow foveae basally, a transverse, angulate, submarginal area apically smooth and shining declivous laterally; metanotum very convex, divided medially by a broad, apically widening, longitudinal furrow, with carinate lateral margins, the upper part of the posterior face bearing several transverse carinae; spiracles small and circular. Abdomen elongate, corbiculate, rather depressed at the base, 3rd and following segments more or less convex dorsally, lateral margins carinate, 1st segment twice as long as wide at the apex, the base very narrowly contracted, 2nd and 3rd solidly joined, 2nd quadrate, 3rd transverse, the line of separation deeply impressed and costate, 4th and remaining segments transverse, the hind border narrowly smooth and polished, practically all the 6th tergite so. Hypopygium large, compressed, plowshare-shaped, ovipositor not longer than the 6th segment. Legs, especially the posterior pair, long and slender, the tibial spurs slender and curved.

Wings hyaline, stigma lanceolate, radius emerging a little behind the middle, 1st abscissa less than half the 2nd, 2nd cubital cell twice as long as wide, recurrent nervure entering 1st cubital cell somewhat before the 1st cubital cross-vein, nervellus postfurcal, subdiscoidal nervure joining discoidal below the middle.

Hab. Malay Peninsula. One specimen. Collected by F. Muir.

Macrostomion amboinensis, n. sp.

♀ 8 mms. long. Ochraceous, only the eyes, tips of mandibles and the area including the ocelli black. Head transverse, eyes large and bulging, slightly emarginate on the inner margin by the base of antennae, ocelli fairly large, oval, arranged in an equilateral triangle on the sides of a small prominence on the vertex, the lateral members removed from the others and from the border of the eyes about the width of their short diameter, from the occipital margin about twice the long diameter; the face below the antennae is slightly bulged and a median carina extends nearly to the clypeus; behind the antennae the head is considerably excavated; the cheeks are narrow. Vertex and cheeks smooth and shining, sparsely punctured, the face finely rugose and hairy. The mandibles are short and broad at the base, rugoso-punctate and hairy. Antennae 46-segmented, long and slender but shorter than the body, the socket of the first and second segments large and conspicuously rimmed. Maxillary palpi 6-segmented, 1st and 2nd short, 3rd long, twice the 4th, both flat, 5th so to a less degree and twisted on 4th, 6th slender and apparently further subdivided; labial palpi 4-segmented. Thorax deep and slender, not as wide as head, punctate and hairy, pronotum small and collar-like, mesonotum bulged and decidedly trilobed, the parapsidal grooves being deep and wide; pleurae well developed. Scutellum broad and angulated posteriorly, the shield rather narrow; in front and next the anterior margin are two large shallow smooth foveae separated by a carina. Postscutellum also rather well developed, the metanotum rounded, with a median carina anteriorly and two lateral carinae posteriorly, connected by several irregular transverse ridges. Abdomen long and slender, longer than head and thorax together, subsessile, depressed to the penultimate segment, 1st segment 3 to 4 times longer than its greatest width, 2nd a little shorter, 3rd, 4th, 5th and 6th quadrate, the last segment compressed, the very large sternites forming with the inflexed tergites a fig.—8-shaped genital opening. Ovipositor short and stout, the valves flat. Median carina extends to apex of 4th segment. All the tergites longitudinally striate and umbilicately punctate except last two, which are punctate. Wings hyaline, stigma and veins ochraceous, stigma lanceolate, 5 times as long as wide, radius emerging at second-fifth from base, 1st abscissa about one-half second, 3rd nearly reaching tip of wing, 1st cubital and 1st discoidal separate, 2nd cubital parallel-sided, twice as long as high, 1st discoidal short pedicillate, recurrent nervure enters 1st cubital cell, transverse median postfurcal, submedian cell longer than median.

Hab. Amboina. Two specimens. Collected by F. Muir, IV-09.

In the ♂ the head and abdomen are darker, the antennae 49-segmented. 3rd and 4th segments of the maxillary palpus abnormally swollen and flat, the 5th segment small and top-shaped, lying on the upper face of the 4th segment before the apex, 6th joint long and slender with subdivisions. The abdomen has 8 visible segments, 1st and 2nd subequal and about twice their width, 3 to 7 quadrate, 8 very short. Penis protruding slightly.

Hemigyroneuron dubiosus, n. sp.

♂ 7.5 mms. long. Ochraceous, the head black, the abdomen outwardly from anterior margin of 2nd segment black or blackish, a suffusion of ochraceous on 2nd segment. Antennae black beyond 2nd segment. Hind tibiae and femora infuscated. Head transverse, eyes large, extending from the vertex almost to the base of the mandibles. Ocelli very large, the lateral members elliptical; arranged in an equilateral triangle, the lateral members removed from each other about 3 times the distance from the border of the eye or from the emargination of the occiput; in front of ocelli the head is deeply impressed, the antennae at the front set into rimmed sockets. Antennae 64-jointed, long and slender, as long as the body. Face and cheeks rather narrow; all transversely rugose, a slight carina on upper part of face, the eyes emarginate behind antennae. Mesonotum rather convex in front, coarsely punctate, mesopleurae smooth in the center, punctate above and below; in front of the smooth broad, saddle-shaped scutellum is a wide and deep-set fovea, marked in the center with 6 closely set longitudinal lines; the postscutellum is also short and broad but not so steeply declivous at the sides as the scutellum; there are two small foveae in the center, larger ones bordering them on the side. The metanotum is fairly flat, rugose, almost longitudinally striate, and has a prominent median longitudinal carina; the spiracle is short oval, its rim hardly raised; the metapleurae are very finely reticulately sculptured in the center, coarsely punctate outwardly. Abdomen sessile, elongate, depressed, 1st segment longer than broad, 2nd quadrate, 3rd and following segments broader than long; the median longitudinal carina extends nearly to the middle of the 3rd segment and as far as it reaches the dorsum is longitudinally striate; beyond it is punctate and hairy, and on either side of the median line at the anterior margin of the 4th and 5th segments are large shallow circular foveae. Apex bluntly pointed, penis protruding a little beyond the short cerci. Legs long and slender, spines of tibiae straight. Wings hyaline, stigma and veins ochraceous to dark brown, radius emerging from middle of stigma, which is about 4 times as long as broad, 1st abscissia shorter than 2nd, 2nd cubital cell a little longer than wide but parallel-sided, 1st discoidal cell short petiolate from middle of parastigma, 2nd discoidal cell not completely closed and a pale orange suffusion on the disc below it, the externo-medial and the anal nervures greatly thickened outwardly and the transverse median, which leaves the median far beyond where the basal intersects, is slightly curved.

Hab. Laloki, Papua. One specimen. Collected by F. Muir, 1910.

Sub-fam. SIGALPHINAE.

Muiriella new genus (type *concisa*).

Near *Polydegmon* but the hind coxae without a tooth and the ventral side of abdomen entirely concave.

Muiria concisa, n. sp.

♀ 2 mms. long. Black, the legs and antennae basally yellowish brown, head, prothorax and mesothorax smooth and polished, finely punctate and hairy. Head transverse, wide between the eyes, ocelli arranged in an isosceles triangle on the vertex, the anterior angle obtuse, lateral members nearly as far from each other as from the border of the eye, front excavated between the antennal sockets, which are somewhat removed from the eye margin, antennae 21-segmented, not as long as the body, filamentous, the segments decreasing in length outwardly, the last ten or so moniliform, apically recurvate;

face short, transverse, clypeus distinct, cheeks moderate, trophi pallid, occiput flat and distinctly margined. Pronotum and pleurae forming a well developed collar with a median transverse costate furrow, the parapsidal furrows on the mesonotum represented by oblique, coarsely punctate lines meeting at the posterior margin, mesopleurae coarsely punctate above and below, smooth and shining in the middle, a distinct punctate line on posterior margin; disc of the scutellum triangulate, a broad costate furrow in front, the lateral areas and the postscutellum also foveolate, metathorax rugose, upper hind angles denticulate. Abdomen corbiculate, shorter than the head and thorax, coarsely longitudinally striate and rugose between the striae, with two transverse carinae and denticles along the lateral margins behind the posterior carina; ovipositor longer than the abdomen, ochraceous. Legs moderately short. Wings reaching beyond the tip of the body, hyaline, the tegulae yellowish brown, stigma lanceolate, brownish black, radial cell complete but hardly reaching apex of wing, only one cubital cell present, the cubitus obliterated a little beyond the intersection of the 1st cubital cross-vein, 1st discoidal cell sessile, nervellus postfurcal, subdiscoidal nervure inserted in the lower half of the discoidal, radius obliterated in hind wing, all the nervures yellowish brown.

Hab. Larat. One specimen. Collected by F. Muir, Dec. 1907.

Sub-fam. CHELONINAE.

Ascogaster rugosa, n. sp.

♂ 3 mms. long. Black, coarsely rugose throughout and clothed with silvery hairs, antennae and legs yellowish brown, the hind femora, tibiae (except at base), and tarsi fuscous, coxae black. Head large, wide between the eyes and thick, dorsally flat and horizontal, ocelli arranged in almost a straight line across the vertex, the members widely separated but the anterior closer to the lateral than the eye or the occiput, eyes small, scrobes wide and smooth, separated by a small, semicircular lamellae, antennae filamentous, shorter than the body, 1st segment flat and stout, 2nd small, 3rd and 4th equal, four times as long as wide, 5th and remaining segments successively shorter, quadrate beyond the 8th; face perpendicular, hardly as long as broad, the cheeks as wide as the eyes, the postgenae bulging and wider, trophi pallid, occiput concave and distinctly margined. Pronotum narrow, pleurae small, mesonotum with the parapsides almost obliterated, pleurae convex, disc of the scutellum triangulate, the anterior furrow costate, lateral areas and postscutellum also costate, metanotum truncate behind, the posterior margin dorsally 4-denticulate. Abdomen widely joined, oval but pointed at apex, corbiculate, without apparent segmentation, two lateral longitudinal carinae at base venter deeply concave for most of its length. Hind legs long and fairly stout. Wings not reaching tip of abdomen, for the most part hyaline but clouded somewhat beneath the stigma, which is broad and short; radial cell also short, no longer than the stigma, cubital cells complete, recurrent nervure entering 2nd cubital cell, 1st discoidal cell short petiolate, nervellus almost interstitial, subdiscoidal nervure entering discoidal shortly below the middle, radius in hind wings obliterated.

Hab. Roban, Java. One specimen (482). Collected by F. Muir, VI, 07.

Ascogaster argentea, n. sp.

♂ 5 mms. long. Black and shining, clothed with silvery hairs, the antennae basally, fore and middle legs, trophi and tegulae brown to fuscous, head, pro- and mesothorax finely to coarsely punctate and areolate, metathorax and abdomen rugose, the latter longitudinally striate basally. Head large, transverse, wide between the eyes and thick, ocelli arranged in an isosceles triangle on the vertex, the anterior angle obtuse, lateral members as far from each other as from the occipital margin, one-half the distance to the border of the eye, front excavated behind the antennae, which are filiform, nearly as long as the body, 1st segment stout, face short carinate above, cheeks moderate, the postgenae bulging and much wider, occiput concave and distinctly margined. Pronotum narrow, the pleurae well developed, the mesonotum flat, the parapsidal grooves represented by broad foveate lines which widen posteriorly and merge at the posterior margin, pleurae convex, the posterior margin with a deep costate furrow in front of it, disc of the scutellum triangulate with a broad costate groove in front, the lateral areas and postscutellum also costate, the metanotum truncate posteriorly and areolate, the upper hind angles denticulate, the two within less distinct. Abdomen as long as the thorax, sessile, long oval, corbiculate, two lateral longitudinal carinae at base, the venter deeply concave for most of its length. Legs fairly stout, the metatarsus as long as all the other tarsal segments together. Wings not reaching tip of body, hyaline, stigma lanceolate, radial cell short, cubital cells complete, 1st discoidal cell shortly petiolate, recurrent nervure interstitial, nervellus postfurcal, subdiscoidal nervure entering below the middle of the discoidal, radius in hind wing obliterated.

Hab. Buitenzorg, Java. One specimen. Collected by F. Muir.

Sub-fam. AGATHINAE.

Beognatha gracilis, n. sp.

♀ 3.5 mms. long. Smooth or finely punctate and hairy, the metanotum and 1st and 2nd abdominal tergites rugulose, the latter microscopically sculptured, vertex on head, discs of pro- and mesopleurae and apical abdominal segments polished, shining black, the head (except on the vertex), the basal part of the 2nd abdominal tergite (except a spot in the middle), the basal abdominal sternites, antennae distally from 1st segment, tegulae and legs (except hind coxae and femora and tibiae apically) yellowish to reddish brown.

Head transverse, triangular viewed from in front, ocelli arranged in an isosceles triangle on the vertex, the anterior angle obtuse, lateral members about 2 diameters apart, 3 from eye margin, more than 1 from anterior member; the front is excavated behind each antennae, the excavations being separated by a wide carina; face shorter than wide, cheeks as long as short diameter of eye. Pronotum and pleurae divided by a transverse furrow or depression, middle lobe of mesonotum bulging in front, parapsides complete, the furrows and lateral margins costate, the furrow separating mesosternae and mesopleurae as well as the posterior margin of the latter costate, the disc of scutellum triangular, slightly convex, the metanotum convex and margined behind. Abdomen about as long as thorax, 1st segment longer than broad, 2nd and 3rd solidly joined, quadrate, the 2nd impressed transversely at about middle, 4th and following segments transverse, ovipositor longer than abdomen. Hind legs stouter than anterior ones. Wings hyaline, stigma lanceolate, radial cell short and narrow, 1st and 3rd abcissae of cubitus obliterated, 2nd cubital cell incomplete.

Hab. Larat. One specimen. Collected by F. Muir, XII, 07.

Euagathis spilota, n. sp.

♀ 10 mms. long. Smooth and shining, head and thorax punctate and hairy, abdomen polished; ochraceous, the abdomen darker, hind tibiae (mostly), tarsi, antennae and ovipositor brownish black to black.

Head transverse, triangular when viewed from the front, wide between the eyes which are bulging, the ocelli arranged in an equilateral triangle on the vertex, the members a little further from the eye margin than from each other, the front excavated but not margined, only two short carinae in front between the antennae, which are broken but have 1st and 2nd segments stout; face a little longer than broad, cheeks about as long as the short diameter of the eye. Pronotum narrow, pleurae wider and concave, middle lobe of the mesonotum bulging, marked with two longitudinal furrows, parapsidal furrows complete but not sharply defined, mesopleurae and mesosternae separated by a broad, costate groove, hind margin of the latter and the groove forming the anterior margin of the metapleurae also costate, disc of the scutellum triangulate, the posterior margin truncate and distinctly margined, the basal depression wide, deep and smooth, a short median carina partially bisecting it, the postscutellum areolate in the middle, metanotum more or less flat and completely areolated, there being a wide basal and apical areola, the former divided by a median longitudinal carina, and a median area divided by four longitudinal carinae, the middle two rather close together, the spiracle elliptical. Abdomen compressed, 1st and 2nd tergites flat, 1st twice as long as wide, 2nd quadrate, 3rd almost so, 4th and following shorter, with a thin fascia of hairs along the posterior margin. Ovipositor short. Wings clear, suffused with amber but infuscate apically and with a dark brown spot below parastigma and a hyaline streak shortly beyond. Areola four-sided, the 2nd abcissa of the radius however very short, 2nd cubitus broken in the middle but not extended.

Hab. Roban, Java. One specimen. Collected by F. Muir, V-07.

Euagathis pallida, n. sp.

♀ 7 mms. long. Smooth and shining, head and thorax punctate and hairy, abdomen polished; ochraceous, the abdomen lighter, eyes and flagellum of antennae black, hind tarsi and ovipositor dark brown.

Head transverse, triangular viewed from in front, wide between the eyes which are bulging, ocelli arranged in an equilateral triangle on vertex, the members a little further from eye margin than from each other, front excavated but not margined, only two short carinae in front between the antennae which are longer than the body and have 1st and 2nd segments stout, face a little longer than broad, cheeks about as long as short diameter of eye. Pronotum narrow, pleurae wider and concave, middle lobe of mesonotum bulging, marked with two longitudinal furrows, parapsidal furrows complete and sharply defined, mesopleurae and mesosternae separated by a broad, costate furrow, hind margin of the latter and the groove forming the anterior margin of the metapleurae also costate, disc of the scutellum triangulate, the posterior margin truncate and distinctly margined, the basal depression wide, deep and smooth, a short median carina partially bisecting it, the postscutellum areolate, metanotum more or less flat and completely areolated, there being a wide basal and apical areola, the former divided by a median longitudinal carina, and a median area divided by four longitudinal carinae, the median area much shorter than in *spilota,* spiracle elliptical. Abdomen compressed, tergites 1-3 flat, 1 nearly 3 times as long as wide, 2 and 3 quadrate, 4 and following shorter with a thin fascia of hairs along the posterior margin. Ovipositor as long as the 2nd segment. Wings clear, suffused with amber but infuscate apically and with a dark brown spot below parastigma and a hyaline streak shortly beyond. Areola four-sided, 2nd cubitus broken in the middle and slightly extended.

Hab. Makassar, Celebes. One specimen. Collected by F. Muir, Dec. 1908.

Euagathis hongkongensis, n. sp.

♂ 8 mms. long. Smooth and shining, head and thorax coarsely punctate and hairy, abdomen polished; ochraceous, the abdomen darker, the tip actually black, hind legs (except trochanters), antennae and ocellar space black.

Head transverse, triangular viewed from in front, wide between the eyes which are bulging, ocelli arranged in an isosceles triangle on vertex, anterior angle obtuse, lateral members twice as far from eye margin as from each other, less than one-half a diameter to anterior member, front excavated but not margined, only two short carinae in front between the antennae, which are longer than the body, the antennal sockets tuberculate, 1st and 2nd segments stout; face a little longer than wide, cheeks as long as eye. Pronotum narrow and folded, pleurae wider and concave, middle lobe of mesonotum bulging, marked with a broad median longitudinal carina, parapsidal furrows complete, broad and deeply grooved, hind margin of mesopleurae and the groove forming anterior margin of mesopleurae and the groove forming anterior margin of metapleurae costate, disc of the scutellum triangulate, the posterior margin truncate and distinctly margined, the basal depression wide, deep and smooth, a short median carina partially bisecting it; the postscutellum areolate, metanotum more or less flat and completely areolated, there being a wide basal and apical areola, the former divided by a median longitudinal carina, the latter indistinctly separated from the short and subquadrate central areol of the median area, which is divided by four longitudinal carinae; spiracle elliptical. Abdomen compressed apically, tergites 1-3 flat, 1 nearly twice as long as wide, 2, 3 and 4 quadrate, following shorter, with a thin fascia of hairs along the posterior margin.

Wings clear, somewhat suffused with amber but infuscate apically and with a dark brown band below parastigma and a hyaline streak shortly beyond. Areola triangular, 2nd cubitus curved, not broken in the middle.

Hab. Hong Kong, China. One specimen. Collected by F. W. Terry. Two specimens from Macao, collected by Muir, XII-06.

Biroia nigra, n. sp.

♂ 7 mms. long. Polished black, punctate and hairy. Head transverse, wide between the eyes, which are prominent and bulging, viewed from in front triangular; ocelli arranged in an isosceles triangle on the vertex, the anterior angle of which is obtuse, lateral members further removed from eye than from each other; front excavated and margined behind to the ocelli; antennae joined close to the eye, widely separated, lateral margination continued around their base, 1st segment small, 2nd twice as long as wide, third twice as wide as long, flagellum filamentous, opaque and hairy; face longer than wide, convex, almost angulate below, dorsal margin bidentate between the eyes, lateral margin foveate below eye; labrum almost quadrate; cheeks as long as short diameter of eye; trophi pallid. Pronotum narrow, pleurae widening and concave; mesonotum flatly convex; a broad costate furrow along the lower margin of mesopleurae; disc of scutellum small, triangular, depressed apically, bifoveate basally; intersegmental furrows separating the thin pleurite between the mesopleurae and metapleurae margined by deep broad costate grooves; metanotum areolate, disc traversed by four longitudinal and many irregular transverse carinae, posterior face 5-areolate. Abdomen basally depressed, compressed apically, 2nd and following segments with a transverse fascia of hairs, 1st tergite ligulate, widening posteriorly but considerably longer than the greatest width, 2nd and 3rd separated only by a thin furrow, 2nd deeply impressed across the middle and anteriorly along the sides; 3rd and following segments transverse and compressed. Hind legs longer than the anterior ones, coxae stout, femora rather short. Wings dark brown basally, hyaline beyond the stigma, radial cell short and narrow, 1st abscissa of the cubitus almost completely obliterated, 2nd cubital cell quadrate.

Hab. Piroe, Ceram. Two specimens. Collected by F. Muir.

Biroia ochracea, n. sp.

♀ 10 mms. long. Smooth and shining, punctate and hairy, the metathorax heavily clothed, abdomen polished; brownish ochreus, the eyes, flagellum, segments 4-8 of the abdomen and sheaths of the ovipositor black.

Head transverse, wide between the eyes, which are prominent and bulging, viewed from in front triangular, ocelli arranged in an equilateral triangle on the vertex, about 1 diameter apart, 5 from the border of eye; front excavated and margined behind to ocelli; antennae joined close to the eye, widely separate, the lateral emargination continued around the base, 1st segment small, 2nd stout, half as wide as long, 3rd half as long as wide, flagellum filamentous, opaque and hairy; face wide between the eyes, narrowed below, dorsal margin between eyes bidentate, lateral margins with a deep fovea midway between eye and mandible, labrum semicircular, cheeks nearly as wide as short diameter of eye. Pronotum narrow, widening greatly on the pleurae; mesonotum flatly convex; pleurae and sternae bulging, separated by a wide costate furrow; disc of scutellum convex, semicircular, a wide and deep groove in front divided by a median carina; grooves separating the thin pleurite between the mesopleurae and metapleurae costate; metanotum areolate, lateral posterior angles denticulate, the disc traversed by four longitudinal (central pair united anteriorly) and numerous fine transverse carinae, posterior face 5-areolate. Abdomen basally depressed, compressed apically, each segment with a transverse fascia of hairs posteriorly, 1st tergite less than twice as long as wide, ligulate and margined at the sides, 2nd and 3rd quadrate, separated only by a faintly impressed line, 3rd narrowing somewhat apically and marked by a faint line across anterior sixth, 4th to 8th successively shorter, ovipositor longer than abdomen. Legs long and slender, hind femora scarcely longer than coxae and somewhat compressed.

Wings reaching tip of body, yellowish brown, a transverse hyaline band below parastigma, nervures dark brown, stigma lanceolate and ochraceous, radial cell short and narrow, 1st abscissa of cubitus almost entirely obliterated, 2nd cubital cell quadrate.

Hab. Piroe, Ceram. One specimen. Collected by F. Muir.

Biroia ferruginea, n. sp.

♂ 10 mms. long. Smooth and shining, punctate and hairy; ferrugineous to the metathorax, metathorax and middle legs brownish black to black, hind legs and abdomen deep black and polished.

Head transverse, wide between the eyes, which are prominent and bulging, viewed from in front triangular; ocelli arranged in an isosceles triangle on the vertex, the anterior angle of which is obtuse, lateral members further from the eye than from each other; front excavated and margined behind to ocelli; antennae joined close to the eye, widely separate, lateral emargination continued around the base, almost confluent directly between the eyes, 1st and 3rd segments small, 2nd stout, half as wide as long, flagellum filamentous, opaque and hairy; face longer than wide, narrowed and convex below, lateral margin foveate beneath eye, labrum nearly quadrate, cheecks almost as long as eye. Pronotum with two transverse carinae, pleurae concave; mesonotum flatly convex, mesosternae bulging, separated from pleurae by a broad costate furrow; disc of scutellum triangulate and depressed apically, basally bifoveate, grooves separating thin pleurite between the mesopleurae and metapleurae costate; metanotum areolate. Abdomen depressed, 1st, 2nd and 3rd segments subequal, less than twice as long as wide, 1st bicarinate at the base, 2nd with a transverse groove at about the middle and separated from 3rd by a thin furrow, 4th to 8th progressively smaller, each segment with a transverse fascia of hairs posteriorly. Hind legs longer than the anterior ones, coxae stout, femora short and compressed.

Wings dark brown with hyaline spots below the lanceolate stigma, radial cell short and narrow, 1st abscissa of cubitus obliterated, 2nd cubital cell subquadrate.

Hab. Roban, Java. One specimen. Collected by F. Muir.

Braunsia variegata, n. sp.

♀ 10 mms. long. Smooth and shining, head and thorax finely punctate and hairy, abdomen for two-thirds its length longitudinally striate, apically microscopically finely sculptured and hairy; black, the cheeks, labrum, trophi, basal segment of the antennae, pronotum and posterior margin of the pro- and mesopleurae, tegulae, lateral areas of the scutellum, the postscutellum, metanotum in the middle and anteriorly on sides and below on the pleurae, basally on 1st and 2nd abdominal segments (on the 1st continued as a stripe along the middle), a transverse stripe along the furrow between 2nd and 3rd segments (continued anteriorly and posteriorly along the sides), anterior and middle legs entirely, a stripe on posterior aspect of coxae, trochanters, tibiae (except at apex) and tibial spurs of hind legs ochraceous. Head transverse, triangular viewed from in front, wide between the eyes which are prominent and bulging, ocelli ferruginsous, arranged in an isosceles triangle on the polished vertex, the anterior angle extremely obtuse, lateral members about 1 diameter from anterior, about 2 diameters from each other; front deeply excavate, between antennae, which are widely separated at the base and joined close to the eyes, are filamentous and multisegmented (broken off apically), 2nd segment stout, twice as long as wide, 3rd only half both shining, punctate and sparsely clothed, the flagellum densely clothed and opaque; face very hairy, foveate on the sides anteriorly, labrum prominent, cheeks wide, nearly one-half long diameter of eye. Pronotum narrow, pleurae well developed, mesonotum with anterior furrows indistinct, parapsidal grooves complete and distinct, converging posteriorly and merging before attaining posterior margin, lateral margins as well as parasides crenulate, mesopleurae convex, the mesosternum bulging, the wide groove between them crenulate, also a transverse furrow on mesopleurae close to the dorsal margin and another short furrow posteriorly, joining the crenulate posterior margin; disc of scutellum triangular with a deep fovea in front, divided in the middle by a thin carina, the lateral areas of scutellum as well as the postscutellum and metanotum strongly margined posteriorly, the last strongly convex, with a median anterior carina, and very hairy, the pleurae also very hairy and the spiracle elliptical. Abdomen slender, longer than head and thorax together, subpetiolate, 1st segment widening posteriorly, about 5 times as long as apically wide, longitudinally bicarinate in the middle and striate apically, 2nd and 3rd segments solidly joined, also widening slightly apically, together about as long as 1st, the suture a little behind the middle, longitudinally striate to an impressed line about one-third the length of 3rd segment from posterior margin, beyond this the tergites, including 4-8, smooth and shining and more or less compressed laterally, with a transverse fascia of hairs at about the middle, the sternite of the 7th segment plowshareshaped, ovipositor as long as body, the valves hairy. Legs long, slender, hind coxae very large and stout. Wings reaching beyond tip of abdomen, subhyaline, with a brownish yellow suffusion, stigma and nervures dark brown, stigma lanceolate, radial cell short and narrow, areola triangular, cubitus obliterated between 1st cubital and 1st discoidal and beyond areola, a stump of a vein proceeds from 2nd cubital cross-vein, subdiscoidal nervure and the anal nervure apically as well as radius in hind wing obliterated.

Hab. Borneo. One specimen. Collected by F. Muir.

Microdus amboinensis, n. sp.

♂ 5 mms. long. Black, shining, punctate and hairy, abdomen impunctate, polished, front and middle legs except coxae, and trophi yellowish brown.

Head transverse, wide between the eyes, triangular when viewed from in front, eyes bulging, ocelli arranged in an isosceles triangle on the vertex, the anterior angle extremely obtuse, the anterior member less than 1 diameter from lateral, lateral members nearly as far from each other as from margin of eye; front broadly carinate in the middle and deeply excavate behind the antennae, the excavations not margined behind; antennae 38-jointed, nearly as long as body, basal joints stout, flagellum filamentous, opaque and hairy; face wider than long, clypeus foveate laterally, cheeks shorter than short diameter of the eye. Pronotum and pleurae divided transversely, the latter widening posteriorly and polished on the disc, middle lobe of mesonotum prominent in front, the parapsides and lateral margins behind costate, sternae and pleurae separated by a costate furrow, hind margin of pleurae also marked by a costate furrow, the disc polished; scutellum divided transversely before hind margin by a costate furrow, the disc triangular, depressed apically, a broad costate groove basally; metanotum very coarsely rugose, spiracles nearly circular, pleurae finely rugose, punctate on disc, dorsal and anterior margins marked by costate furrows. Abdomen as long as thorax, depressed basally, 1st segment longer than wide, tergite strongly carinate laterally, striate on the disc, a deep furrow between 1st and 2nd, 2nd and 3rd solidly joined, separated dorsally by only a fine line, and 2nd impressed transversely at middle, 4th, 5th and 6th transverse, a thin fascia of hairs near apical margins. Hind legs stouter than anterior ones.

Wings hairy and suffused with pale brown apically, denuded and hyaline basally, radial cell short and narrow, cubitus and subdiscoidal nervures almost completely obliterated, areolet long petiolate and itself reduced almost to obliteration. Nervures in hind wings obliterated apically.

Hab. Amboina. One specimen. Collected by Muir.

Apparently belongs to the same group as *M. pedunculatus*, Szep., from Sydney, N. S. W.

Microdus distinctus, n. sp.

♀ 3 mms. long. Black, shining, punctate and partly clothed with hairs, metanotum coarsely rugose, abdomen microscopically rugulose on basal segment, polished apically, front and middle legs, trophi and hind legs at the knee brown.

Head transverse, wide between the eyes, which are strongly convex, ocelli arranged in an isosceles triangle on the vertex, the anterior angle obtuse, anterior member less than 1 diameter from lateral, which are equidistant from the eye and from each other; front broadly carinate in the middle and deeply excavate behind the antennae, the excavations not margined posteriorly; antennae 29-jointed, shorter than the body, basal joint stout, flagellum filamentous, opaque and hairy, recurrent apically; face a little wider than long, lateral margins of the clypeus foveate, cheeks about half the short diameter of the eye. Pronotum narrow, the pleurae wider, divided by a transverse groove, disc polished; mesonotum convex, parapsides and lateral margins costate, sternae and pleurae separated by a costate furrow, hind margin of the latter also marked with a costate furrow, the disc polished, disc of the scutellum triangulate, a broad, deep, costate groove at the base; metanotum convex, the pleurae punctate on the disc, dorsal and anterior margins marked by costate furrows. Abdomen as long as the thorax, first three tergites flat dorsally, 1st longer than wide and carinate at the base, 2nd and 3rd together longer than 1st, the furrow between 1st and 2nd deeply impressed on either side of the middle, division between 2nd and 3rd lightly marked, 4th to 8th transverse. Ovipositor longer than the abdomen. Hind legs stouter than the anterior ones.

Wings infuscate and hairy, radial cell short and extremely narrow, 1st abscissa of the cubitus obliterated, areolet petiolate.

Hab. Amboina. One specimen. Collected by F. Muir.

Sub-fam. CARDIOCHILINAE.

Laminitarsus new genus (type *muirii*).

Head transverse, face wide and short, eyes elongate, oval and convex, cheeks well developed, temples full, front excavated, ocelli arranged in an isosceles triangle, the anterior angle of which is very obtuse, the anterior member less than half its diameter from lateral members, these about 2 diameters from each other and 4 from border of eye. Antennae long and slender, 51-segmented, 1st segment very stout, maxillary palpi 6-segmented, labial palpi 4-segmented. Thorax as broad as the head, pronotum short and inconspicuous, mesonotum flatly convex, parapsidal furrows complete and deep, meeting before the posterior margin, pleurae well developed, scutellum rounded behind, the disc triangular, a broad and deep fovea in front, with 5 fine longitudinal septa, postscutellum well developed and divided into 2 smaller and 2 larger angular areas by diagonally transverse carinae, metanotum flat, pleurae perpendicular, the spiracles large and slit-like. Abdomen small, short oval, sessile, distinctly segmented. Legs long, especially hind ones, which extend far beyond the body; the tibiae are flattened and expanded apically and the metatarsus, nearly twice as long as the remaining tarsal segments together, has a broad leaf-like expansion on the inner side. Tibial spines double, the outer nearly twice as long as the inner and about half as long as the metatarsus. Wings infumated, stigma narrowly lanceolate, radial vein partially obliterated beyond 2nd abscissa and the 2nd cubital cell incomplete from obliterated cross-vein, 1st discoidal cell long petiolate, transverse medial postfurcal. Radius in hind wings nearly entirely obliterated, submedian cell very short.

Laminitarsus muirii, n. sp.

♀ 8 mms. long. Ochraceous to pale brown, antennae beyond 1st segment, a broad vitta posteriorly on head reaching middle of eyes and a large spot in front of ocelli, three similar vittae on mesonotum, the middle one reaching anterior, the two lateral ones the posterior margin, another on mesosternum leaving only a narrow angular area on anterior and posterior margin in middle, transverse bands on 3rd, 4th, 5th and 6th segments of abdomen and spots on mid and hind trochanter and hind coxae, at base and apex of hind tibiae and tarsi entirely black. Head and thorax rugoso-punctate and hairy, abdomen smooth. Antennae 51-segmented, wings infumated, ovipositor short and inconspicuous.

Hab. Los Baños, Philippine Islands. One specimen. Collected by F. Muir, VIII-15.

Sub-fam. OPIINAE.

Austroopius amboinensis, n. sp.

♀ 6 mms. long. Ochraceous, abdomen black, smooth and polished throughout. Head transverse, wide between the eyes, which are bulging, ocelli arranged in an equilateral triangle on the vertex, the members removed from each other about half a diameter, the enclosed space black, from margin of eye about 2 diameters, shallowly excavated in front of ocelli, antennal sockets next the eye margin, which is here slightly emarginate, antennae 62-segmented, long and slender, black except segments 1 and 2 which are also stouter, and hairy; face broad, slightly bulged, closely and distinctly punctate and hairy, faintly carinated above, clypeus distinct, cheeks narrow, mandibles stout, tips black, bidentate, a distinct slit-shaped mouth opening, palpi slender, 6 and 4-segmented respectively. Thorax as wide as the head and deeper than wide, pronotum inconspicuous but the pleurae well developed, notauli conspicuous, fairly deep, mesopleurae with a short groove on posterior margin and hairy in parts, disc of scutellum angulate, octafoveate in front, metanotum convex with a median carina which bifurcates behind forming a small semilunar areola, pleurae hairy, the groove separating notum and pleura wide and steep, the circular spiracle at about the middle. Abdomen subsessile, short ovate, not longer than the thorax and depressed, 1st segment about as long as its width behind, with a broad keel, the minute spiracles are slightly elevated and median in position, following segments all transverse and nearly subequal, all finely and sparsely punctured and hairy above and below, ovipositor exserted about one half the length of the abdomen, the legs long, thin and hairy. The wings hyaline, stigma fairly broad, radius arising at the middle, 1st abscissa less than half the 2nd, which is longer than the fusiform 1st cubital cross-vein, 2nd cubital cell narrower outwardly than at base, the 1st cubital and the 1st discoidal cells are separate and the latter is short petiolate, almost sessile, the transverse medial nervure is postfurcal, the discoidal nervure beyond is greatly thickened, the recurrent nervure is strongly curved and at the end where it merges with the cubital is strongly incrassate, a slight suffusion at end of the anal nervure. In the hind wings the radius is obliterated and the submedian cell is about half the length of the median.

The ♂ has the abdomen concolorous instead of black.

Hab. Amboina. One ♀ and four ♂ specimens. Collected by F. Muir.

* * *

EXPLANATION.

Fig. 1. *Macrostomion amboinensis* ♀ x 3½.
a, laterial view of head showing maxillary palp of this sex;
b, apical segments of abdomen in lateral view. Both much enlarged.

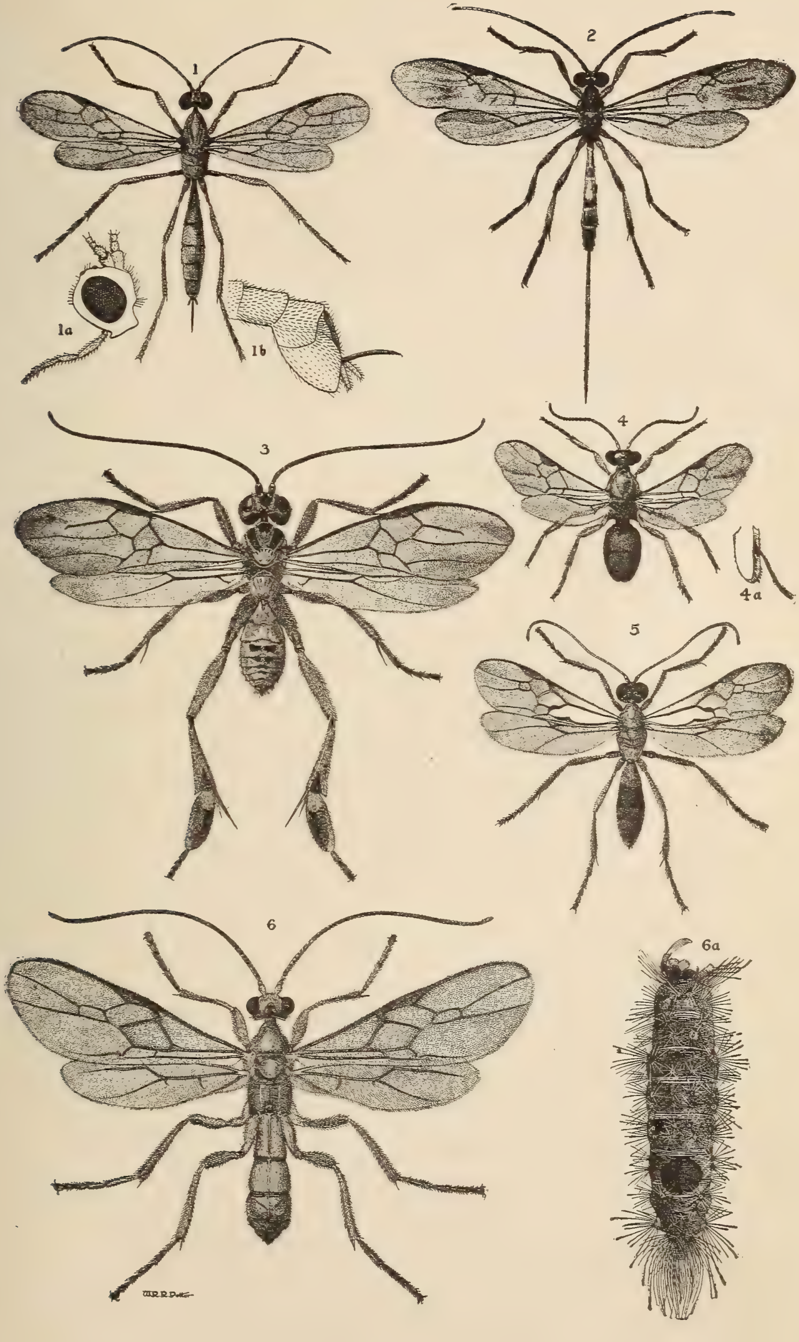
Fig. 2. ***Braunsia variegata*** **♀ x 2⅔.**

Fig. 3. *Laminitarsus muirii* ♀ x 3½.

Fig.. 4. *Muiriella concisa* ♀ x 8½.
a, lateral view of abdomen.

Fig. 5. *Hemigyroneuron dubiosus* ♂ x 3.

Fig. 6. *Heterogamoides muirii* ♀ x 4½.
a, the spiny pupa from which it emerged x 3.


1
1a
1b
2
3
4
4a
5
6
6a

MALAYAN BRACONIDAE.

Body Temperature and Comfort.

BY J. ARGYLL CAMPBELL.

These records have been taken from the same subject with the same clinical thermometers during residence in various climates—Scotland, Malaya, Java and Australia. They cover a period of six years.

It is well known that, so delicate is the heat regulating system of man, his temperature is only slightly influenced by the temperature of his surroundings. This fact is shown by records of temperature in the Tropics and in the Arctic regions. By wearing appropriate clothing and living in suitable quarters the temperature remains practically the same.

In this paper the temperature of the well-closed and dry axilla is taken as a guide to the temperature of the body. The temperature of the mouth as well as the wet and dry bulb readings for the atmosphere are also given. Observations were made in the same room always, in each case. The thermometers were left in situ for four minutes. With the clinical thermometers employed, this was found to be sufficient, although Pembrey (1) says "in order to obtain accurate results the thermometer should be retained for eight minutes in the mouth and eleven minutes in the well-closed and dry axilla."

Meals were taken as follows, morning tea between 6 a.m. and 7 a.m., breakfast between 8 a.m. and 9 a.m., lunch between 1 p.m. and 2 p.m., afternoon tea between 4 p.m. and 5 p.m., dinner between 7.30 p.m. and 8.30 p.m., except in the case of the Blue Mountains where the evening meal was taken between 6.30 p.m. and 7.30 p.m. There is a rise in temperature after a meal (2).

Exercise—walking, golf or tennis—was taken fairly regularly. The letter E on the charts denotes exercise. Exercise produces a rise in temperature, which disappears soon after cessation of the exercise (3).

Standard works state that, speaking generally, the temperature rises during the morning and the afternoon, but falls during the evening and early part of the morning (4).

In the present work all the records are comparable as regards daily routine. They were taken during holidays.

The subject is a thin healthy man aged 34 years, 5 ft. 9 ins. in height and 10 stone 4 lbs. in weight.

The readings are given in Fahrenheit scale.

RECORDS IN VARIOUS CLIMATES.

Edinburgh, Scotland.—During residence in Edinburgh, the temperature in the axilla averaged 97° (Chart I). This was the case for at least eight years. This axillary temperature is much below the mean daily temperature of the average man, which is usually given as 98.45° (5). The low temperature is explained by the fact that the subject has a normal temperature below the average. The records given on Chart I. were taken during residence at a hospital in Edinburgh. The mean annual atmospheric temperature for Edinburgh is 47.7°.

Bungalow No. I. Singapore.—This bungalow is situate on a hill, about 150 feet above the sea. It looks out over the harbour and nearly always enjoys a cool breeze. Whilst in this bungalow the subject very rarely felt uncomfortably hot. On these occasions there was no breeze. On Chart II it will be seen that the average axillary temperature was 97.1°, practically the same figure as for Edinburgh. The mouth temperature averaged 97.7°. It occasionally fell below that of the axilla. This was probably due to mouth-breathing, the subject suffering fairly frequently from nasal catarrh. The mouth is always liable to considerable local variation of temperature, but the axilla is not.

It was observed that an axillary temperature of 97.6° produced discomfort.

The average wet and dry bulb readings were 76.3° and 81.4° respectively, the atmosphere being warm and moist.

Ordinary white ducks with light woollen vests were worn. Ninety nine people out of a hundred in Singapore wear white ducks or very similar clothing. This is sufficient proof of their comfort to the ordinary individual. Some object to them because of the glare. Wearing dark coloured spectacles will overcome this trouble.

Lembang, Java.—On Chart III are given records of nine days' residence at Lembang, 4000 feet above the sea. The average axillary and mouth temperatures were 96.7° and 97.2° respectively, the subject, feeling comfortably cool. The atmospheric temperature was fairly low, the readings being 64.7° for the wet bulb and 69.1° for the dry bulb. Warm clothing was worn during the evenings.

Between the hours 2 p.m. and 4 p.m., the hottest time of the day it was occasionally uncomfortable, the axillary temperature being 97.6° or more.

Bungalow No. II. Singapore.—During succeeding years the subject experienced several uncomfortably hot bungalows. Chart IV. gives the records taken in such a bungalow. The average axillary temperature was 97.6°. This caused discomfort. It will be seen that as far as atmospheric temperature and moisture were concerned the conditions were similar to those given for Bungalow No. I. The wet and dry bulb readings were 76.3° and 81.4° respectively for No. I., and 76.7° and 81.5° respectively for No. II. Why then did No. II feel much hotter? Because it is situate almost on sea level, and it is closely surrounded on three sides by hills and dwellings. The fourth side is not open, but the hills and dwellings here are further off and very rarely a breeze finds its way in by this side. There were no electric fans; had these been available the conditions would have been much improved. Heat is lost by radiation, conduction, convection and evaporation. The skin and respiratory tract are especially concerned. Radiation, conduction and convection from the body are lessened in a warm atmosphere; and a moist atmosphere retards evaporation; but a breeze aids conduction and convection and cools the skin. Therefore, in our warm and moist climate, maximum use should be made of any breeze that is available and hill sites should be chosen for bungalows. All buildings should be supplied with electric fans.

Taiping Hill, Perak. Chart V shows the records obtained during a holiday on this comfortable hill-station 3,400 feet above sea level. Only once or twice, for short periods, did the subject feel uncomfortably hot and on these occasions the axillary temperature was 97.6° or more. The average wet and dry bulb readings were 68.7° and 71.3° respectively. The average axillary temperature was 96.9° and the average mouth temperature 98.1°. Fires and warm clothing were employed after 5 p.m.

Katoomba, Blue Mountains, Australia.—Several months were spent near Katoomba, 2,300 feet above the sea. Some few days were fairly hot, but on the whole the weather was wet and cool, the wet bulb average being 66.2° and the dry bulb 67.6°. The average axillary temperature was 97.2° and the average mouth temperature was 97.8°. Warm clothing and fires were used frequently.

SUMMARY.

It will be seen from Chart VII that so long as the axillary temperature of the subject, under observation, was about 97°, he felt comfortable. A rise to 97.6° produced an uncomfortably hot feeling. For each person there will be similar temperatures, varying slightly in each case.

It is of interest to note that in the breezy bungalow No. I. Singapore, the axillary temperature was about the same as that given for various cooler climates. A bungalow properly built, equipped and placed in Singapore, offers very comfortable conditions. In our warm and moist climate maximum use should be made of any available breeze and hill sites should be chosen for residences. There is no doubt that, in unfavourably placed residences, the temperature of the body is higher than it should be. It may be only slightly higher, but this is sufficient to produce considerable discomfort and in time, considerable damage to health.

O'Connell (6), in discussing the etiology of malaria, points out that hot, moist and still air has a good deal to do with outbreaks of this disease. It is well known that, in badly ventilated factories at home, this atmospheric condition causes a definite rise of temperature, great discomfort and a weakening of the system. O'Connell also quotes, H. M. Chief Inspector of Factories—"The general opinion I have formed from the detailed study of the observations (in the cotton sheds) is that a rise of mouth temperature makes itself felt when the wet bulb (temperature of the air) exceeds 75° F." In my records it will be observed that 75° was exceeded in both bungalows No. I. and No. II; but in bungalow No. I the cool breeze, by aiding conduction and convection of heat, counteracted the ill effects of the excessive heat and moisture, thus producing bodily comfort. In bungalow No. II. the absence of a breeze caused great discomfort; electric fans would have improved conditions.

The chances of a breeze in the thickly populated areas of this town are small and undoubtedly our unfavourable atmospheric conditions—heat and moisture—are free to exert their greatest ill in these quarters. Our high death rate shows that they do so.

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1. Pembrey M. S. Text Book of Physiology, Vol. I, edited by E. A. Schäfer, page 786.
2. Ibid, page 809.
3. Ibid, page 806.
4. Ibid, page 798.
5. Ibid, page 788.
6. O'Connell, M.D. Journ. Trop. Med. and Hyg., Sept. 1st, 1913.

CHART I.

EDINBURGH, SCOTLAND

55 ° 57' North. 300 feet above sea.

Body Temperature. Average.

Red line—Temperature in Axlilla 97.

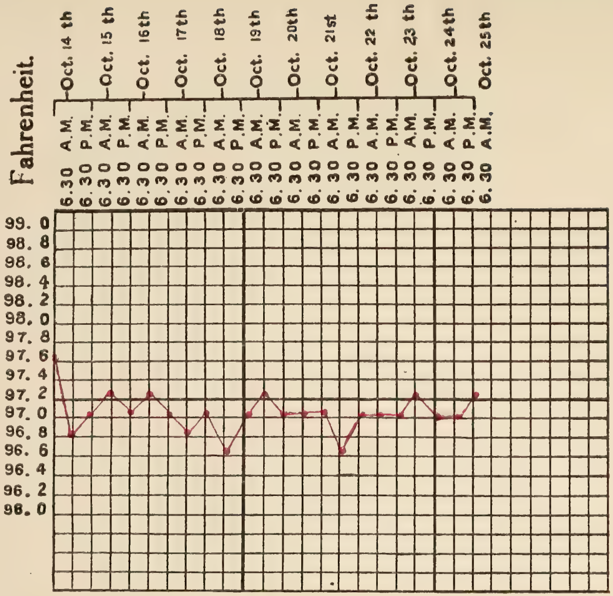
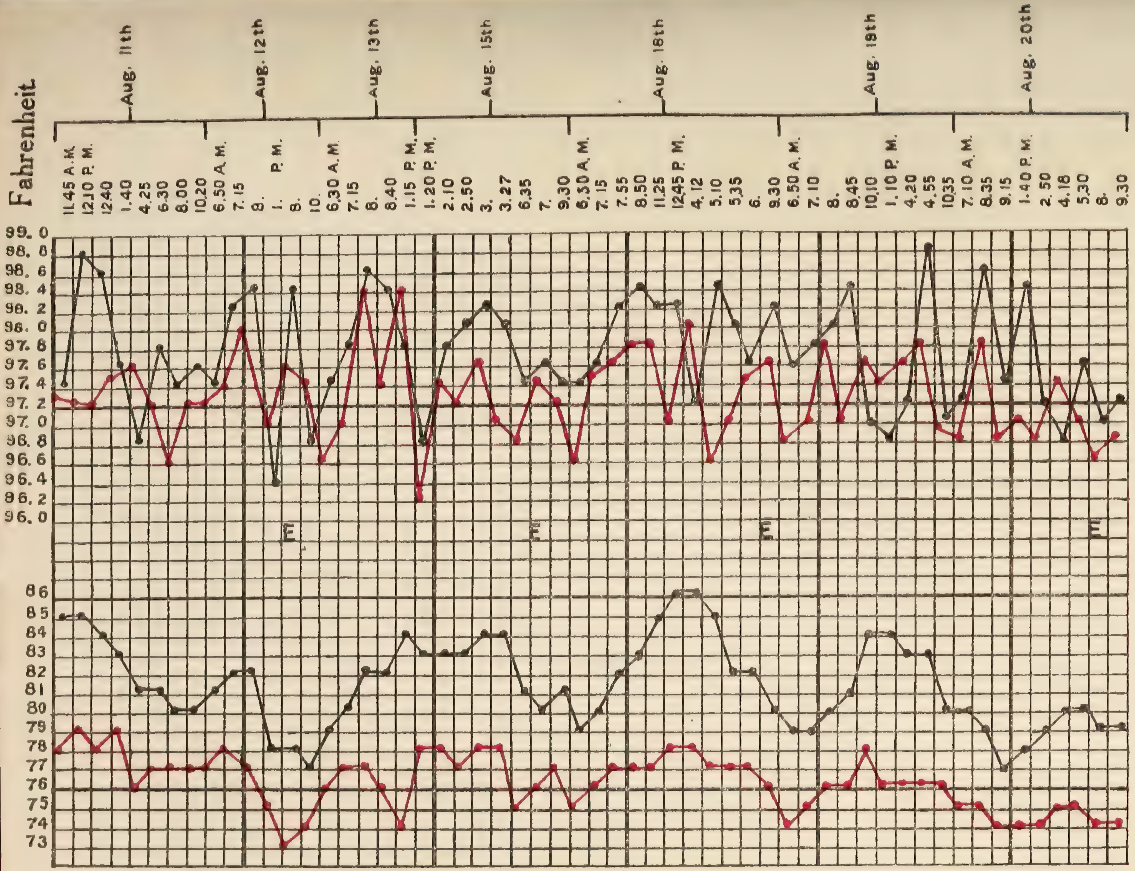


CHART II.



BUNGALOW NO. I. SINGAPORE

1 ° 17′ North, about 150′ above sea.

BODY TEMPERATURE

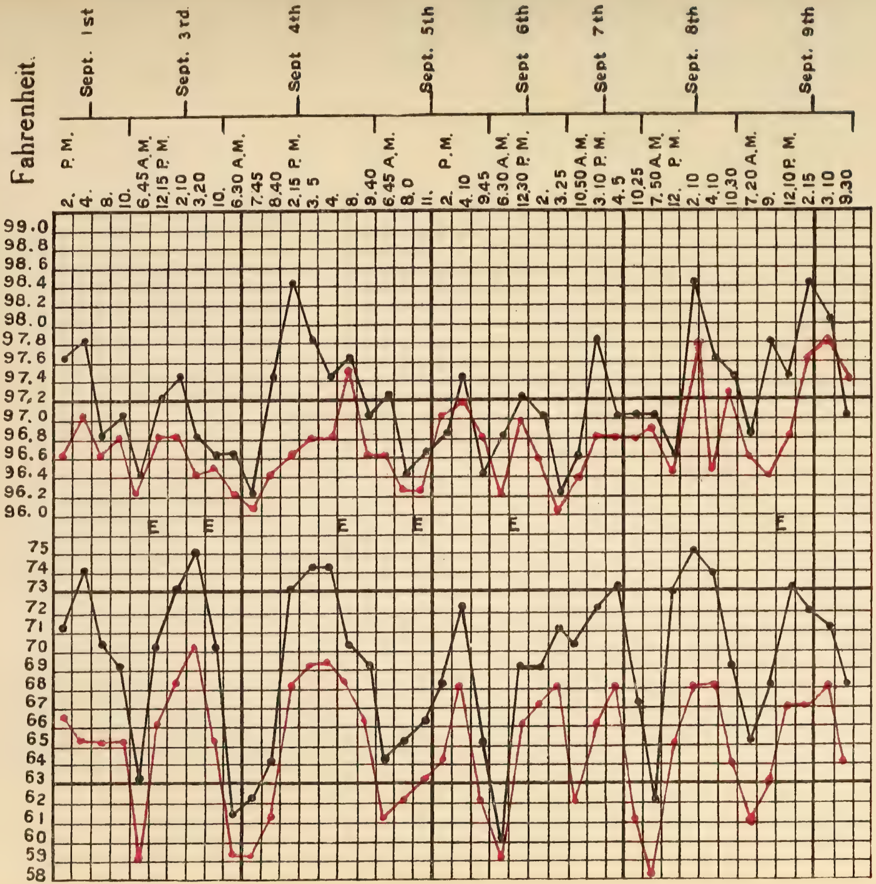
	Average.
Black line—Temperature in mouth	97·7.
Red line—Temperature in axilla	97·1

E-excercise.

TEMPERATURE OF AIR

Black line—dry bulb reading	81·4.
Red line—wet bulb reading.	76·3.

CHART III.



LEMBANG, JAVA

6 ° 49' South, 4000 feet above sea.

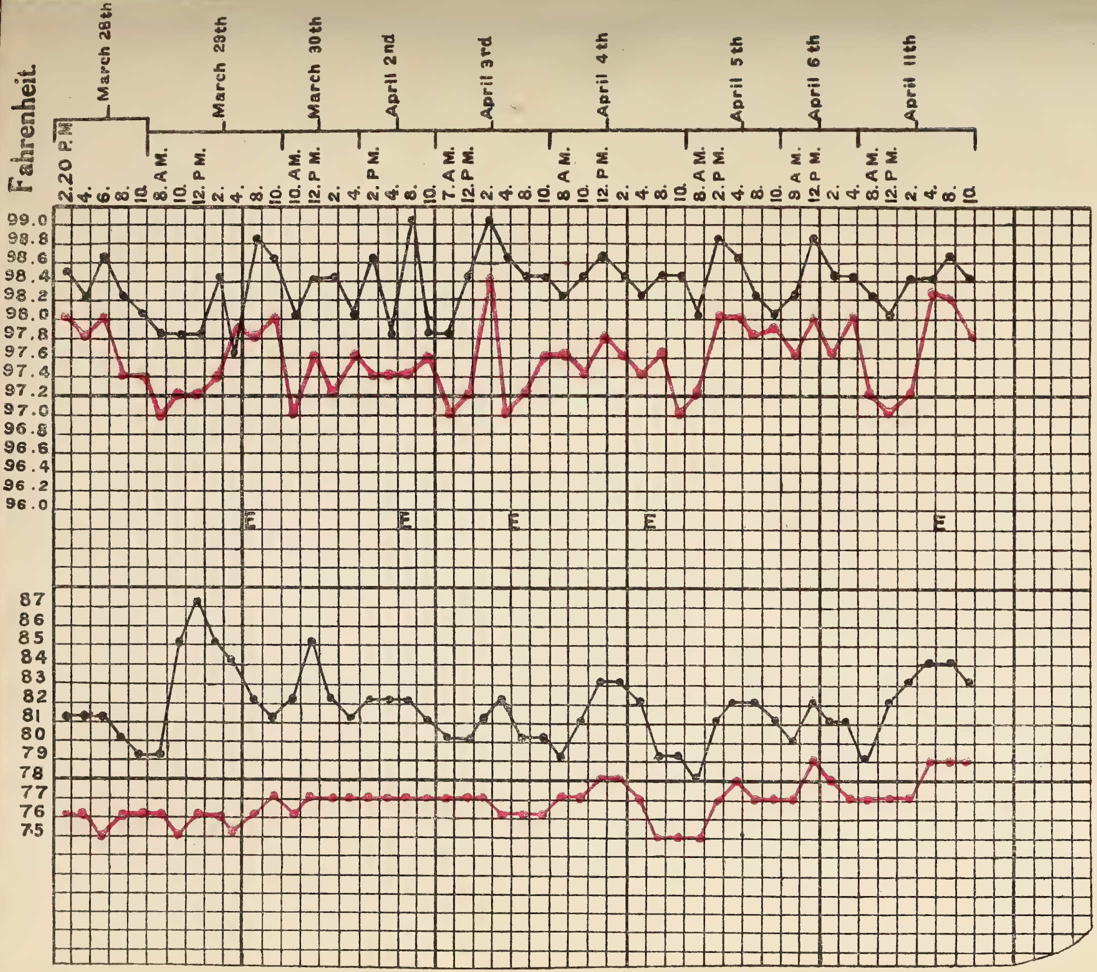
BODY TEMPERATURE

	Average.
Black line—Temperature in mouth	97·2.
Red line—Temperature in axilla	96·7.

E-excercise.

TEMPERATURE OF AIR

Black line—dry bulb reading.	69·1.
Red line—wet bulb reading.	64·7.



BUNGALOW NO. II. SINGAPORE

1 ° 7' North. A few feet above sea.

BODY TEMPERATURE

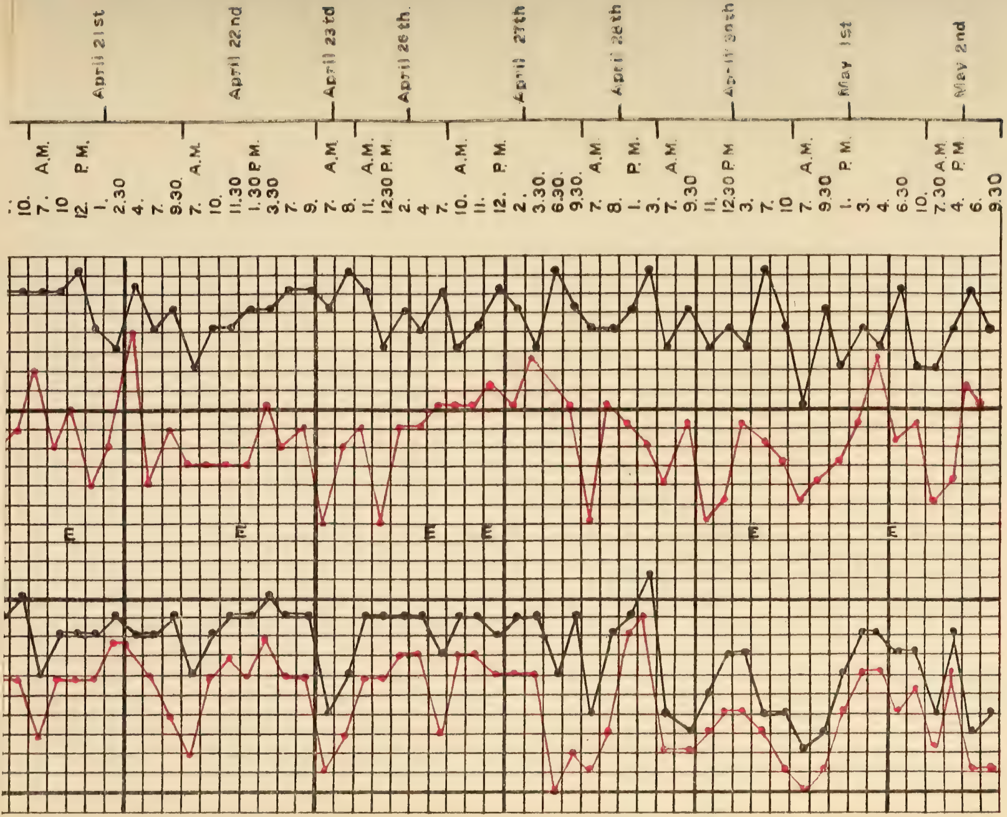
	Average.
Black line—Temperature in mouth	98·3.
Red line—Temperature in axilla	97·6.

E-excercise.

TEMPERATURE OF AIR

Black line—dry bulb reading	81·5.
Red line—wet bulb reading.	76·7.

CHART V.



TAIPING HILL, PERAK F.M.S.
4 ° 52' North, 3400 feet above sea.

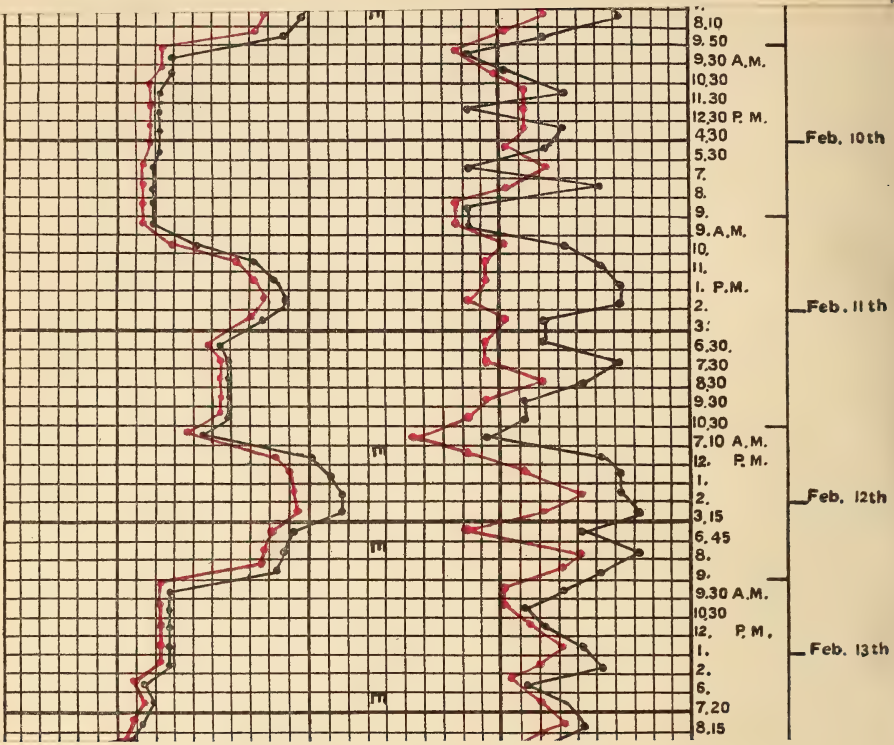
BODY TEMPERATURE

	Average.
Black line—Temperature in mouth	98·1.
Red line—Temperature in axilla	96·9.

E-excercise.

TEMPERATURE OF AIR

Black line—dry bulb reading.	71·3.
Red line—wet bulb reading	68·7.


8.10
9.50
9.30 A.M.
10.30
11.30
12.30 P. M.
4.30
5.30
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Feb. 10th
Feb. 11th
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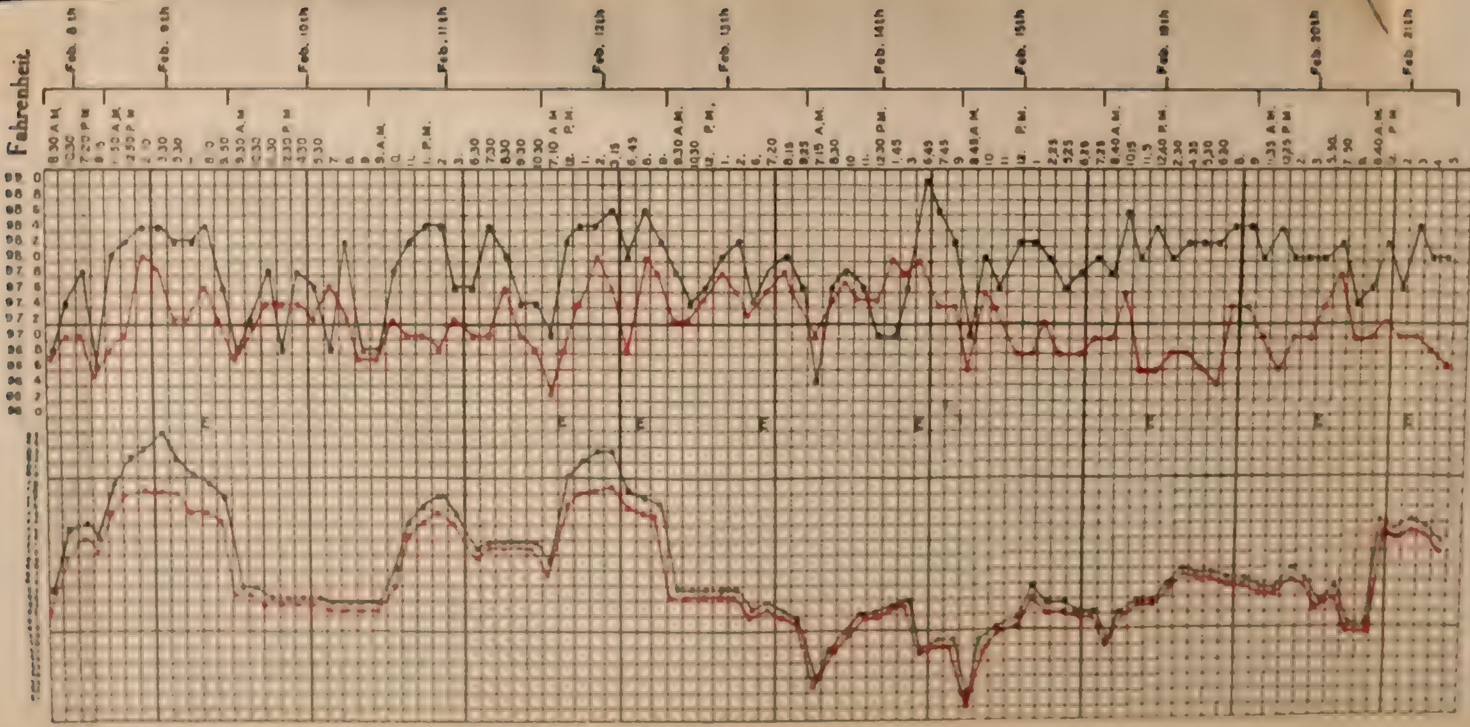
CHART VI.



KATOOMBA, BLUE MOUNTAINS NEW SOUTH WALES.

33 ° 40′ South, 2300 feet above sea.

BODY TEMPFRATURE

Average.

Black line Temperature in mouth 97·8.

Red line Temperature in axilla 97·2.

E-excercise.

TEMPERATURE OF AIR

Black line dry bulb reading. 67·6.

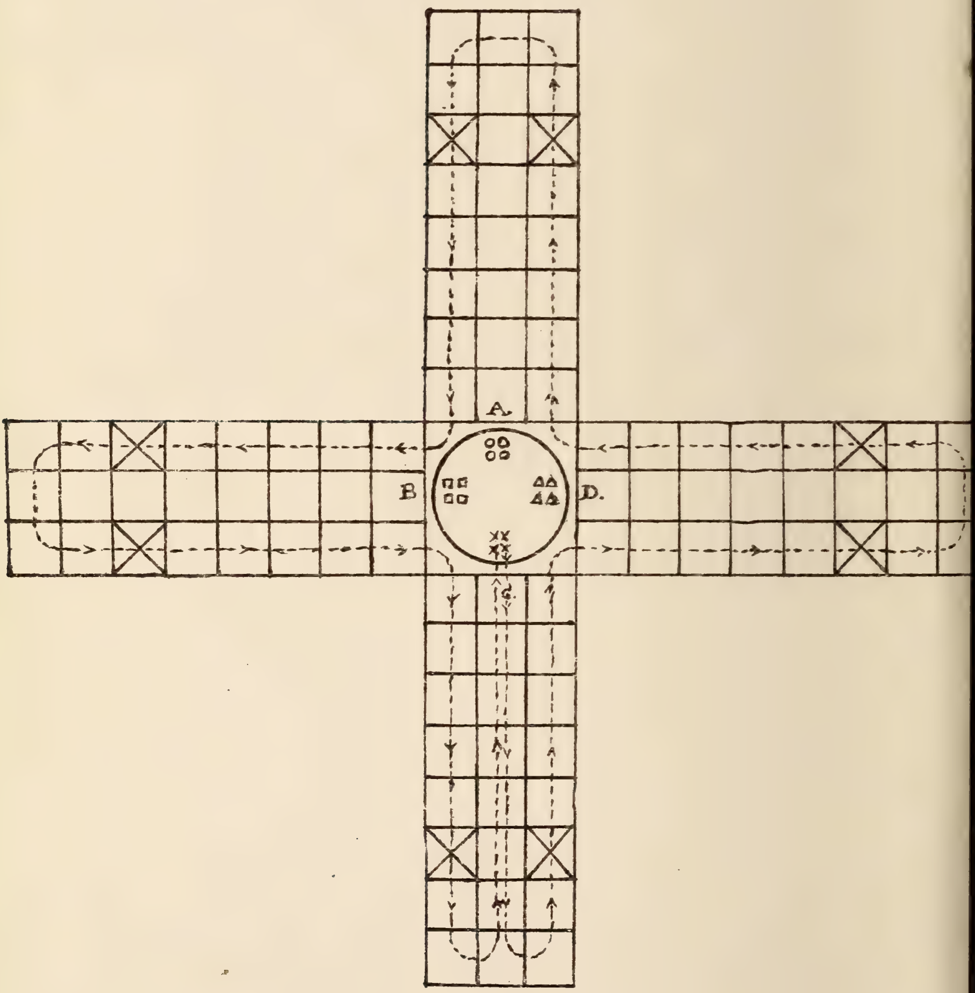
Red line wet bulb reading. [illegible]

Chart VII (Average Figures.)

Residence.	Order.	Body Temperature.		Air Temperature.		Remarks.
		Month.	Axilla.	Dry bulb.	Wet bulb.	
Edinburg Scotland. ...	1st	——	97.0	——	——	Comfortable.
Bungalow No. 1 Singapore.	2nd	97.7°	97.1°	81.4°	76.3°	Comfortable.
Lembang, Java.	3rd	97.2°	96.7°	69.1°	64.7°	Comfortable.
Bangalow No. II, Singapore.	4th	98.3°	97.6°	81.5°	76.7°	Uncomfortably hot.
Taiping Hill. Perak. ...	5th	98.1°	96.9°	71.3°	68.7°	Comfortable.
Blue Mountains, Australia.	6th	97.8°	97.2°	67.6°	66.2°	Comfortable.

Journal 80, Straits Branch, Royal Asiatic Society.

The Acheh Game



Diag: I.

The dotted line shows the course traversed by one of C's pieces

Notes on Malay Indoor Games.

By O. T. Dussek.

While reading Dr. C. Snouck Hurgronje's book, 'The Achehnese' (the late Mr. O'Sullivan's translation), I came across some notes on a game called 'main pacheh,' and on enquiring I found that the game is well known among Penang Malays. The board used, however, and the scoring are so different as to be worthy of record.

I attach diagrams and short notes in order to point the contrast.

Main Pacheh.

The Acheh Game.

This game can be played by 2, 3, or 4 persons, each player sitting at one extremity of the cross-shaped board, (see Diagram 1).

Each player has four pieces which at the commencement of the game he places in the central circle *i.e.* opposite A, B, C, D, respectively.

The idea of the game is similar to our children's race-games, all the pieces having to career round the board, and the player all of whose pieces reach home first wins the game. [The course to be taken by one of C's pieces is dotted in the diagram].

The players throw by turn with seven cowrie shells, which must fall with the opening either upward or downward, and score as follows:—

7 shells opening upwards = 14*
6 „ „ „ = 30*
5 „ „ „ = 25*
4 „ „ „ = 4
3 „ „ „ = 3
2 „ „ „ = 2
1 „ „ „ = 10
7 „ „ downwards = 7*

* Secures an extra throw.

After each throw a player moves any one of his pieces (at his own selection) over a number of squares equal to the number of his throw.

A great point of the game is to try and 'pukul' an opponent *i.e.* to reach a square on which an opponent is already standing, in which case the opponent's piece has to go back to the starting point.

The only squares on which two or more pieces are allowed to stand at one and the same time are those marked X. On such squares no penalties are incurred by any piece.

[*Note.*—I find that the game is too slow, and to brighten things up a bit we use 8 shells, score as above, with the addition of

8 shells opening upwards .. = 50*
8 „ „ downwards = 40].

Jour. Straits Branch R. A. Soc., No. 80, 1919.

Main Pacheh.

The Penang Game.

This game can be played by 2, 3, or 4 persons, each player sitting at one of the four points A, B, C, D (see diagram 2).

Each player has four pieces which at the commencement of the game he places in the crossed square facing his position: these four squares opposite A, B, C, D, are the respective starting points.

The course to be taken by one of B's pieces is dotted in the diagram. It seems rather confusing in its twists and turns, but the Malays do not seem to find it so.

The players throw by turn with four cowrie shells and score as follows:—

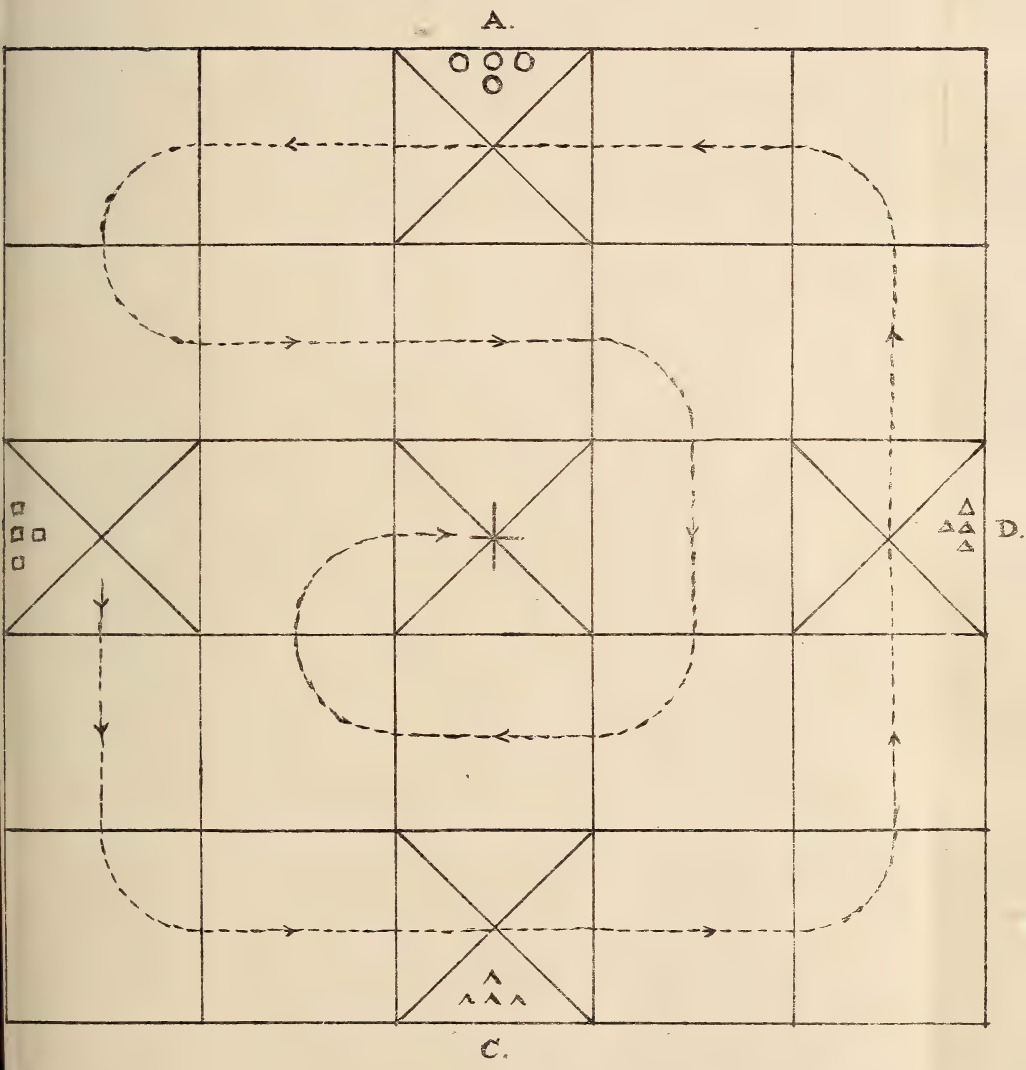
4 shells opening upwards = 4*
3 „ „ „ = 3
2 „ „ „ = 2
1 „ „ „ = 1
4 „ „ downwards = 8*

* Secures an extra throw.

The method of procedure is exactly the same as in the Achehnese variety, a square marked (X) has the same meaning, and a piece which is caught (pukul) must go back to its starting point.

[*Note.*—I find that this game also is tedious, and hasten things by introducing 5 shells, scoring as before with the addition of
5 shells opening upwards = 12*
5 „ „ downwards = 12].

The Penang Game.

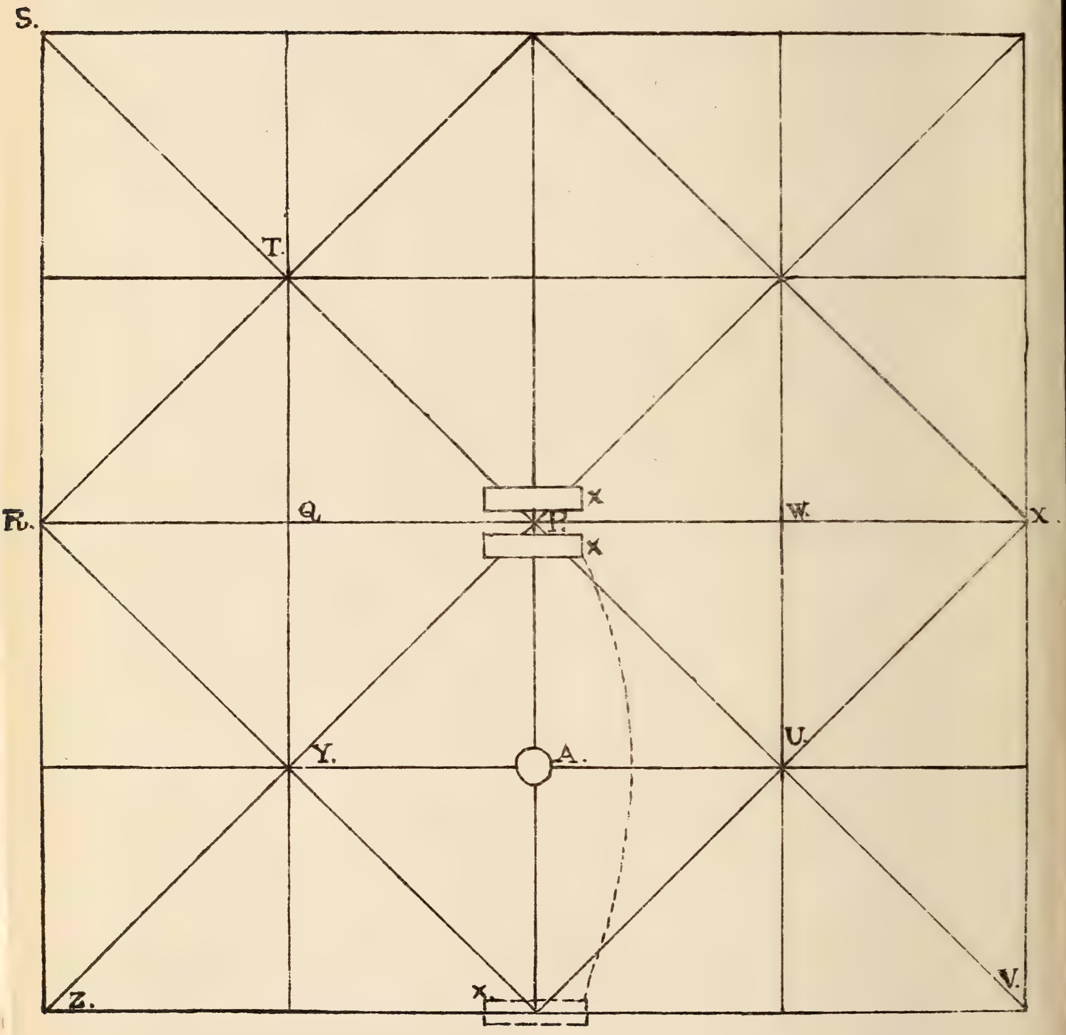


Diag. II.

The dotted line shows the course traversed by one of B's pieces.

Main Tapak ĕmpat.

A Menangkabau Game.


S.
T.
R.
Q
P.
x
x
W.
X.
Y.
A.
U.
Z.
x
V.

○ = Kambing.
▭ = Harimau.

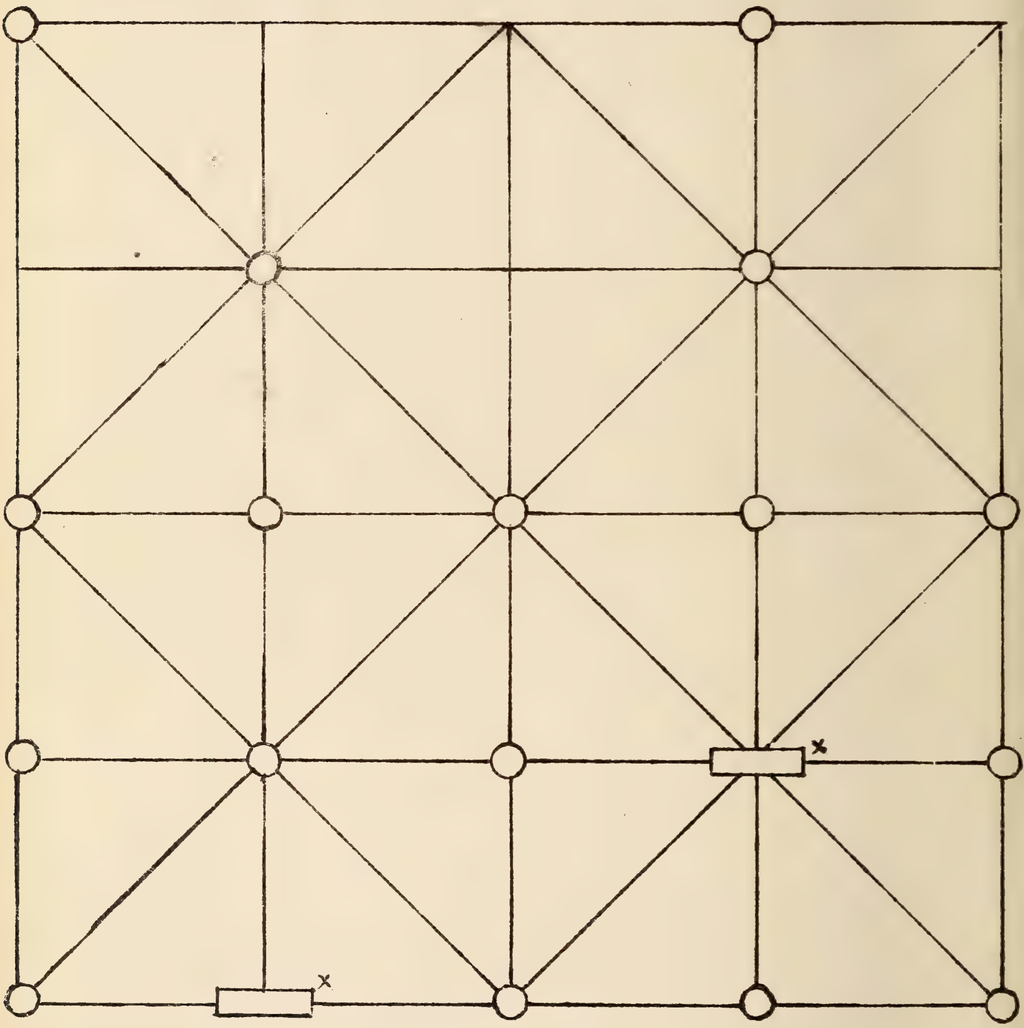
Diag: III.

Showing the usual first move of A (Kambing)

Journal 80, Straits Branch, Royal Asiatic Society.

Main Tapak ĕmpat.

A Menangkabau Game.



Diag: IV.

○ = Kambing.

▭ˣ = Harimau.

Showing Harimau beaten.

Main Tapak Ĕmpat.

A Menangkabau Game.

This is a type of 'fox-and-geese' or 'main harimau kambing,' which so far as I know has not yet been recorded.

The pattern of board used is represented in diagrams 3 and 4 which show the usual opening move and the 'harimau' beaten respectively.

The game is played by two players, one (A) taking the 'kambing' (24 pieces), while the other (X) representing the 'harimau' has two pieces.

The players move in turn, A commencing. A generally places his first piece as in diagram 3, it being considered worth while to separate the 'harimau' at the sacrifice of a piece.

A is allowed to place his pieces one by one at any of the points on the board, endeavouring all the time to enclose the two 'harimau' completely.

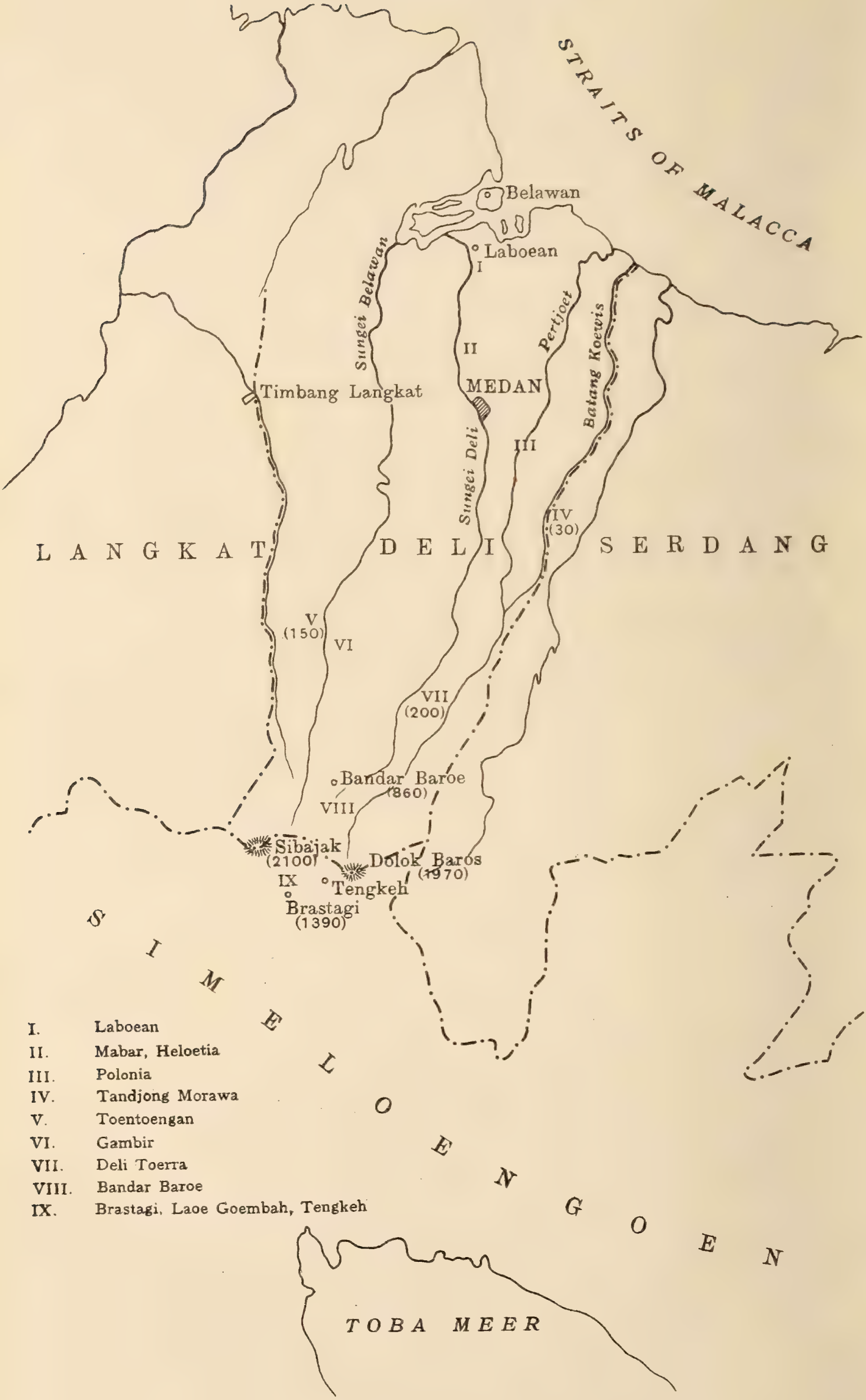
In order to try and avoid being hemmed in, X is allowed to move either of his pieces any distance he pleases along any of the parallel or diagonal lines passing through that piece's position, provided that none of the intervening spaces are occupied.

e.g. in diagram 3, X may move one of his pieces from P to any one of Q, R, S, T, etc.:—

X is further allowed to take the 'kambing' and this is done exactly as in draughts (English variety, not Malay). The dotted line in diagram 3, shows X ('harimau') capturing A ('kambing'). The 'kambing,' of course, is removed from the board.

If A's 24 pieces are exhausted and the 'harimau' are not hemmed in, then A has lost.

Diagram 4 shows a defeat of the 'harimau.'


STRAITS OF MALACCA
Belawan
Laboean
I
Sungei Belawan
Pertjoet
Batang Koewis
II
MEDAN
Timbang Langkat
Sungei Deli
III
IV
(30)
LANGKAT
DELI
SERDANG
V
(150)
VI
VII
(200)
Bandar Baroe
(860)
VIII
Sibajak
(2100)
Dolok Baros
(1970)
IX
Tengkeh
Brastagi
(1390)
SIMELOENGOEN
TOBA MEER

I.	Laboean
II.	Mabar, Heloetia
III.	Polonia
IV.	Tandjong Morawa
V.	Toentoengan
VI.	Gambir
VII.	Deli Toerra
VIII.	Bandar Baroe
IX.	Brastagi, Laoe Goembah, Tengkeh

On a Collection of Birds

from

N. E. Sumatra.

By

H. C. Robinson, c.m.z.s., m.b.o.u.

and

C. Boden Kloss, f.z.s., m.b.o.u.

Heer A. C. F. A. van Heyst, a Dutch gentleman engaged in planting in the Deli District, N. E. Sumatra, has recently entrusted us with a collection of birds made by him in that and neighbouring districts. The collection is so large that it merits listing in detail, and we therefore have prepared the following account of it.

The literature dealing with the area is fairly considerable, but to economize space we have only quoted the list given by Hartert (Novitates Zoologicæ, IX, pp. 194-220 (1902), and our own paper on the avifauna of Korinchi where a more detailed synonymy will be found (Journ. Fed. Malay Museums, vol. VIII, part II, 1918).

We have had occasion to describe four new forms in this paper, viz.,

Macropygia ruficeps sumatranus.
Brachylophus chlorolophus vanheysti.
Cyornis vanheysti.
Buchanga leucophaea batakensis.

while four species which have not hitherto been recorded from Sumatra,

Collocalia linchi cyanoptila, Oberholser.
Collocalia innominata, Hume.
Geocichla citrina citrina (Lath.).
Machaeramphus alcinus, Westerm.

were also obtained by Heer van Heyst who has supplied the following account of the various localities whence his collection was derived.

Laboean Deli. On the coast with the ordinary mangrove forest.

Polonia Estate, Deli. A tobacco estate in flat country not exceeding 20 metres (65 ft.) in altitude. Large fallows overgrown with lalang or secondary jungle. When in July the tobacco crop has been gathered, rice is grown on the fields until March. After that the land lies fallow for seven or eight years. The secondary jungle attains a height of about 24 feet and is very thick. There is also a certain amount of arable land besides the tobacco as well as kampong land and a little swampy country. Throughout the country are scattered lofty trees (toalang).

Mabar Estate. Similar country, about 15 metres (50 feet).

Helvetia Estate ” ”

Tandjong Morawa in the Serdang district is somewhat more undulating land up to about 30 metres (100 ft.) with a strip of primaeval forest along the Batang Koeuris (the stream forming the boundary between the Deli and Serdang districts where most of the birds were collected).

Deli Toewa Estate. In the Deli District on hilly country ranging up to about 200 metres (650 feet). Most of the birds were collected in primaeval forest at the south side of the estate.

Toentoengan Estate. Like Deli Toewa, height ranging up to about 150 metres (480 feet).

Gambir. An old tobacco estate now in lalang and secondary jungle with some old forest.

Bandar Baroe, Deli Dist. A mountainous district about 860 metres (2800 ft.) consisting of rubber estates and primaeval jungle.

Brastagi in the Simeloengan District in parts mountainous and partly plateau land, height 1,390 metres (4,520 ft.), Brastagi is on the Karo Plateau which is undulating country overgrown with lalang. Near the kampongs the Battaks cultivate rice and potatoes. Most of the birds were collected in forest along the south sides of the Sibajak Mountains.

Tengkeh. Mountainous country somewhat below Brastagi at the foot of the Dolok Baros: old primaeval jungle.

Boeloe in Serdang District: flat low country.

Tandjong Selamat. A rubber estate in the Langkat District with primaeval jungle in the vicinity.

PHASIANIDAE.

1. **Arboricola rolli,** Rothschild.

Bull. Brit. Orn. Club XXV, p. 7 (1909).

? juv. Bandar Baroe, Deli, N. E. Sumatra, 19th April 1917 [No. 298].

♂ ad. Tengkeh, Simeloengan, N. E. Sumatra, 27th June 1918 [No. 1035].

The first bird is little more than a chick and has the head still in down so that its identification is a matter of considerable uncertainty. The bill in life would appear to have been red at the tip as in *A. rubrirostris* but there is a large patch of silky white feathers on the ear coverts, characteristic of *A. rolli*, so we have determined it as that species.

The second bird is an adult male, undoubtedly of this species, though it does not quite agree with the description of the type, differing as follows. Upper lores grey, superciliary stripe black posteriorly, the feathers with white bases. A narrow black band starting at the nostrils completely surrounding the eye. Beneath this, starting at the chin, a broad silky white band ending at the ear coverts, which are silky white; this again is bordered by a black band. The feathers in the centre of the throat black with white bases and ultimately white with black tips. A clearly defined narrow black band separating the black and white throat from the olive brown breast. Wing 142 mm., tail 57, tarsus 44, bill from gape 26 mm.

2. **Excalfactoria chinensis chinensis** (Linn.).

Salvad., Bull. Mus. Torin. XI, p. 12 (1896); Hartert, Nov. Zool. IX, p. 217 (1902).

Excalfactoria sinensis, Hartert. p. 217.

7 ♂ 7 ♀ Polonia, Deli, N. E. Sumatra, 14th October 1916, 29th January 1917 [Nos. 731, 740, 643, 648, 752, 667, 769, 672].

Wing, ♂ 66, 70, 69, 69, 69, 68; ♀ 71, 71, 71, 68, 69, 67 mm.

These specimens which are very uniform *inter se* agree with specimens from the Malay Peninsula and must we think be regarded as belonging to the continental form of the species, *E. chinensis chinensis.* They differ from the insular form *E. c. lineata* (Scop.) which is recorded from S. & W. Sumatra in being much lighter in general colour and in having the back in the male much less blotched with black. We have compared the males with a specimen of *E. c. lineata* from Paku Saribas, S. W. Sarawak, Borneo.

3. **Gallus gallus** (Linn.).

Gallus ferrugineus, Hartert, p. 218.

5 ♂ Toentoengan, Deli, N. E. Sumatra, 20th-22nd February 1918 [Nos. 995, 6, 1026-8].

Wing, 215, 217, 225, 228, 230 mm.

Agree exactly with a series from the Malay Peninsula and have large white lappets on the sides of the neck.

4. **Chalcurus chalcurus** (Less.).

Robinson and Kloss, p. 102.

♀ Tengkeh, Simoloengan, N. E. Sumatra, 28th June 1918 [No. 1036].

Wing, 155 mm.

A quite typical specimen.

TURNICIDAE.

5. **Turnix pugnax** (Temm.).

Salvd., Bull. Mus. Torino, XI, p. 12 (1896); Hartert, loc. cit. p. 217; Stuart Baker, Journ. Nat. Hist. Soc. Bombay, p. 391 (1915).

4 ♂, 6 ♀ Polonia, Deli, N. E. Sumatra, 17th April 1916, 22nd April 1917 [Nos. 807, 472, 751, 683, 735, 302].

Wing, ♂, 78, 79, 78, 78; ♀, 82, 81, 81, 85, 83, 87 mm.

The rufous collar on the hind neck of the female is not invariably present; in one specimen of the above series which is unusually dark, it is almost entirely absent. All specimens are much darker above than a series of the Malay Peninsula form, *Turnix p. plumbipes,* Hodgs.

It may here be mentioned that Stuart Baker (*loc. cit.*) is in error in applying the name *T. p. atrogularis,* Eyton (P. Z. S. 1839, p. 107) which was founded on a bird from Malacca, to those from Formosa, China and South-eastern Shan States for which if distinct the proper name is *Turnix pugnax rostrata* Swinhoe (Ibis 1865, p. 543) founded on Formosan birds.

TRERONIDAE.

6. **Butreron capellei** (Temm.).

Hartert. p. 216.

♂ Deli Toewa, Deli, N. E. Sumatra, 8th February 1917 [No. 10].

♂ Toentoengan, Deli, N. E. Sumatra, 24th December 1917 [No. 881].

♂ Tandjong Slamat, Langkat, N. E. Sumatra, 16th February 1918 [No. 1025].

Wing, 192, 193, 197 mm.

Evidently commoner in Sumatra than it is in the Malay Peninsula; we found it being trapped in large numbers in the Padang lowlands near Indrapura in February 1914 though we obtained no specimens ourselves.

7. **Sphenocercus korthalsi** (Temm.).

Robinson and Kloss, p. 103.

♀ Brastagi, Simeloengan, N. E. Sumatra, 18th June 1917 [No. 505].

Wing, ♀ 154 mm.

A characteristic montane bird rarely found below 3,000 feet in Java and Sumatra: replaced in the Malay Peninsula by the somewhat doubtfully distinct *Sp. robinsoni.*

8. **Osmotreron olax** (Temm.).

Hartert, t. c. p. 216.

♂ Laboean Deli, Deli, N. E. Sumatra, 24th February, 1917 [No. 66].

Wing, 122 mm.

Always much rarer, or at least much more rarely shot than the succeeding species.

9. **Osmotreron vernans** (Linn.).

Robinson and Kloss, p. 106.

4 ♂, 3 ♀ Toentoengan, Deli, N. E. Sumatra, 8th November 1917 to 23rd December 1917 [Nos. 578, 584, 594, 613, 615, 625, 878].

♂ Polonia, Deli, N. E. Sumatra, 12th December 1916 [No. 679].

2 ♂ Deli, N. E. Sumatra, 10th May to 3rd June 1916.

Wing, ♂, 133, 136, 138, 132, 135, 132; ♀, 131, 129, 128 mm.

Oberholser has created several new names for various insular races of this wide spread green pigeon, restricting the typical race to the Philippine Islands. The present series seems considerably smaller than the race from the Anamba Islands which he has named *Dendrophassa vernans adina* (Bull. U. S. Nat. Mus., 98, p. 21, 1917). Average wing measurements, ♂ 153·8; ♀ 150·9 mm. The Sumatran and Malay Peninsula birds are practically identical in size.

COLUMBIDAE.

10. **Macropygia ruficeps sumatranus,** subsp. nov.

Macropygia ruficeps nana, Robinson and Kloss, p. 109.

♂ imm, 4 ♀ ?. Bandar Baroe, Deli, N. E. Sumatra, 1-11th June 1917, and 21st January 1918 [Nos. 421, 426, 477, 944, 945].

Having had, through the kindness of the authorities of the Sarawak Museum, the opportunity of examining a considerable series of Bornean birds including two from Kina Balu, the typical locality of *M. r. nana,* Stresemann, we are convinced that Javan, Bornean, Sumatran, and Malayan birds are all subspecifically distinct, and that the differences seen are not those of age alone as stated by Stuart Baker (Indian Pigeons and Doves, p. 249, 1913). We have had before us over seventy specimens from the various localities and after eliminating all birds that are in the slightest degree immature find that the Javan bird, which is the typical *M. r. ruficeps,* can be distinguished at a glance by the almost total absence of black lateral spots on the feathers of the breast. The Bornean bird *M. r. nana* differs from the Javan in having large black lateral spots on the crop feathers and in having the back and mantle very much darker.

The Sumatran birds differ from the Bornean in having the head a paler cinnamon buff and the back much more barred; the amythystine gloss on the side of the neck and mantle much reduced, but the green glossy barring much more marked. The white tips to the feathers of the breast are much reduced and the black markings are much more pronounced.

Type. Adult male. Gunong Talaman, 1300 m. (4250 ft.) Ophir district, W. Sumatra, collected on 3rd June 1917 by E. Jacobson.

"Iris white: bill chocolate brown, feet strawberry red." (E. J.).

Measurements in the flesh. Total length 298; wing 132; tail 143; bill from gape 19.5; tarsus 17 mm.

Specimens examined. Eighteen.

A very large series from the Malay Peninsula seems to come closest to the form from Borneo, but we have not as yet been able to compare them with authentic specimens of *M. r. assimilis,* Hume, of which the type locality is the hill country N. E. of Moulmein.

PERISTERIDAE.

11. **Streptopelia suratensis tigrina** (Temm. and Knip).

Robinson and Kloss, p. 111.

Turtur tigrinus, Hartert, p. 216.

♀ Polonia, Deli, N. E. Sumatra, 3rd November 1916.

♀ Toentoengan, Deli, N. E. Sumatra, 10th November 1917 [No. 580].

♀ No details, 19th May 1916. "Feet strawberry colour, bill black."

Wing, ♀, 134, 138, 135 mm.

These specimens agree with others from Eastern Sumatra and from the Malay Peninsula in having the wing under 140 mm. whereas those from Western Sumatra and Java, which is the typical locality, range from 140-158 mm. The smaller bird has been named by Parrot *Turtur tigrinus minor,*[†] but in default of larger series we do not for the present propose to accept this sub-species.

12. **Geopelia striata** (Linn.).

Hartert, p. 217.

2 ♂ Polonia, Deli, N. E. Sumatra, 30th April 1916, 8th November 1916 [No. 724].

♀ Tanjong Morawa, Serdang, N. E. Sumatra, 27th March 1917 [No. 183].

♂ ♀ imm., Deli, N. E. Sumatra.

Wing, ♂, 98, 96, 99; ♀, 94 mm.

[†] Abhandl der Konigl. Bayer. Akad. der Wissensch. 11. Kl. XXIV Bd 1 p. 275 (1907).

Immature birds have the barring on the sides of the breast and flanks much less decided. The species is a bird of open country and grass lands and in most places, if not disturbed, becomes very tame and confiding.

13. **Chalcophaps indica** (Linn.).

Robinson and Kloss, p. 112. Hartert p. 217.

♀ Deli Toewa, Deli, N. E. Sumatra, 4th May 1917 [No. 352].

♂ ♀ Toentoengan, Deli, N. E. Sumatra, [Nos. 870, 871].

3 ♂ Deli, N E. Sumatra, 24th May 1916, 7th June 1916. Wing, ♂, 142, 142, 141, 139; ♀, 136, 133 mm.

The Bronze Ground Dove is common practically everywhere throughout Indo-Malaya: these specimens call for no special remark.

RALLIDAE.

14. **Hypotaenidia striata** (Linn.).

Robinson and Kloss, p. 114; Hartert, p. 219.

2 ♂, ♀ Polonia, Deli, N. E. Sumatra, 19th February 1917, 17th March 1917 [Nos. 32, 112, 156].

Wing, ♂, 122; ♀, 111 mm.

Widely spread throughout the Indo-Malayan area.

15. **Poliolimnas cinereus** (Vieill.).

Robinson and Kloss, p. 115.

5 ♂, 3 ♀ Polonia, Deli, N. E. Sumatra, 2nd January 1917, 1 juv., 11th May 1917 [Nos. 48, 51, 52, 53, 56, 76, 98, 353, 354].

Wing, ♂, 90, 88, 89, 94, 87; ♀, 82, 88, 85 mm. Evidently very common in N. E. Sumatra.

16. **Amaurornis phoenicura javanica** (Horsf.).

Robinson and Kloss, p. 115.

Amaurornis phoenicura, Hartert, p. 219.

5 ♂ (1 imm.), 5 ♀ (2 imm.) Polonia, Deli, N. E. Sumatra, 21st April 1916—26th March 1917 [Nos. 22, 150, 188, 760, 14].

1 ♂ Toentoengan, Deli, N. E. Sumatra, 23rd February 1918 [No. 1029].

1, No label.

Wing, ♂, 148, 143, 144, 149; ♀, 139, 152, 145 mm.

The dimensions of these birds agree with those from W. Sumatra and are smaller than the form from the Malay Peninsula, but in this series if the birds are correctly sexed there appears to be no great difference between the sexes in size.

17. **Gallinula chloropus orientalis,** Horsf.

Robinson and Kloss, p. 116.

Gallinula chloropus (? sub-sp.), Hartert, p. 219.

4 ♂, 1 ♂ imm., 5 ♀, 1 ♀ imm. Polonia, Deli, N. E. Sumatra, 2nd January 1917—16th March 1917 [Nos. 658, 24, 43, 115, 149, 799, 47, 59, 103, 57, 149].

Wing, ♂ 145 (worn); ♀, 139, 146, 144.
A very much smaller bird than the European water-hen.

18. **Limnobaenus fuscus**(Linn.).

Robinson and Kloss, p. 114; Hartert, p. 219.

♂ Toentoengan, Deli, N. E. Sumatra, 18th February 1918 [No. 994].

Wing, ♂ 88 mm.
Common over the whole Indo-Malayan area.

CHARADRIIDAE.

19. **Charadrius dominicus**(P. L. S. Mull).

Charadrius fulvus, Hartert, p. 218.

♂, ♀ Toentoengan, Deli, N. E. Sumatra, 11th December 1917 [Nos. 848, 850].

1 spm. No exact lacality.
Wing, ♂, 160 mm.

20. **Tringoides hypoleucus**(Linn.).

Hartert, p. 218.

♂ ?, 3 ♀ Polonia, Deli, N. E. Sumatra, 6-13th November 1916 [Nos. 712, 739, 787, 780].

2 ♂ Toentoengan, Deli, N. E. Sumatra, 21st November to 1st December 1917 [Nos. 620, 837].

Wing, ♂, 100, 103; ♀, 106, 106, 104 mm.

21. **Ancylochilus subarquatus**(Guldenst.).

♂ 2 ♀ Laboean, Deli, N. E. Sumatra, 24th February 1917—13th May 1917 [Nos. 67, 68 and 374].

Wing, ♂, 123; ♀, 123, 110 mm.
Common in winter over all Malayan coasts.

22. **Gallinago stenura**(Kuhl.).

Hartert, p. 218.

2 ♀ Polonia, Deli, N. E. Sumatra, 12th January—18th February 1917 [Nos. 29, 640].

Wing, ♀, 126, 128 mm.
Both *G. gallinago* (Linn.) and *G. megala,* Swinh., probably occur in Sumatra also, as they do in the Malay Peninsula.

ARDEIDAE.

23. **Phoyx purpurea manillensis** (Meyen).
Robinson and Kloss, p. 119; Hartert, p. 219.
♂ Brastagi, Simeloengan, N. E. Sumatra, 21st June 1916.

The Eastern form of the Purple Heron is evidently much commoner in Sumatra than it is in most other localities.

24. **Gorsachius melanolophus** (Raffles).
Robinson, Journ. Federated Malay States Mus. II, p. 11 (1909); Buttikofer, Notes Leyden Mus. IX, p. 81 (1887).
♀ imm. Toentoengan, Deli, N. E. Sumatra, 9th January 1918 [No. 911].
Wing, ♀ 265 mm.

Probably not really very rare though its nocturnal and skulking habits render it difficult to obtain. Very few specimens have been collected in Sumatra. It is probably partially migratory as specimens have been obtained at the Aroa Islands a small group off the mouth of the Sungei Rokan Estuary.

25. **Butorides javanica** (Horsf.).
Hartert, p. 219.
♀ Tandjong Morawa, Serdang, N. E. Sumatra, 27th February 1917 [No. 90].
Wing, ♀ 180 mm.
Usually common in Mangrove swamps.

26. **Ardetta cinnamomea** (Gm.).
Robinson and Kloss, p. 120.
5 ♂, ♀ Polonia, Deli, N. E. Sumatra, 27th April 1916—16th March 1917 [Nos. 26, 49, 54, 97, 151, 722].
♂ No exact locality, 21st August 1916.

FALCONIDAE.

27. **Spizaetus limnaetus** (Horsf.).
Robinson and Kloss, p. 122; Hartert, p. 195.
4 ♂, ♀, 1? Polonia, Deli, N. E. Sumatra, 10th June—10th March 1917 [Nos. 58, 60, 147, 173].
♀ Mabar, Deli, N. E. Sumatra, 23rd March 1917 [No. 174].

Four of these birds are entirely black, being the stage described as *Sp. limnaetus* (Horsf.). Two are white beneath with broad black stripes (*Sp. caligatus* Raffles) while one is entirely buffy white beneath, being evidently quite immature. All however are certainly of one species.

28. **Spilornis bacha pallidus**, Walden.
Robinson and Kloss, p. 122.
Spilornis bacha sub sp., Hartert, p. 195.

♂ ♀ Tandjong Morawa, Deli, N. E. Sumatra, 27th February 1917 [No. 80].

♂ Deli Toewa, Deli, N. E. Sumatra, 4th April 1917 [No. 218].

2 ♂, no details, 16th May 1916—11th October 1916.

♂ Toentoengan, Deli, N. E. Sumatra, 7th March [No. 1032].

These specimens vary a good deal *inter se* but we think are best recorded as the pale race originally described from Borneo. Two, however, distinctly approach the darker form from Java *Spilornis b. bido* (Horsf.). Similar birds are occasionally met with in the Malay Peninsula.

29. Machaerhamphus alcinus, Westerm.

Sharpe, Cat. Birds Brit. Mus. 1, p. 342 (1874).

♀ Helvetia, Deli, N. E. Sumatra, 15th November 1916 [No. ?].

Wing, ♀ 375 mm.

This Pern is new to the Sumatran Fauna though it has a very wide range from S. Tenasserim through the Malay Peninsula to Borneo and New Guinea. In the Malay Peninsula it is not really uncommon, though owing to its crepuscular habits and extremely powerful flight it is not often obtained. It feeds largely on bats.

30. Microhierax fringillarius (Drap.).

Robinson and Kloss, p. 124; Hartert, p. 194.

2 ♂ ? Polonia, Deli, N. E. Sumatra, 4th May 1916—6th November 1916 [Nos. 767, —, —].

2 ♂, 2 ♀ Toentoengan, Deli, N. E. Sumatra, 23rd Nov. —29th December, 1917 [Nos. 826-7, 839, 888].

1 ♂ Bandar Baroe, Deli, N. E. Sumatra, 22nd January 1918 [No. 955].

Wing, ♂, 89, 98, 91, 97, 98; ♀, 102, 102 mm.

In the Malay Peninsula this species is common everywhere in low country usually at the edges of clearings and is known as the *lang belalang* (grasshopper hawk).

31. Accipiter virgatus gularis (Temm. and Scheg.).

Robinson and Kloss, p. 121.

♀ vix. ad Tandjong Moerawa, Serdang, N. E. Sumatra, 3rd March 1917 [No. 111].

♀ ad. Mabar, Deli, N. E. Sumatra, 23rd March 1917 [No. 177].

Wing, ♀ ad, 193; ♀ vix ad. 186 mm.

Obviously belonging to this migratory form; the true *A. v. virgatus,* a smaller and much more richly coloured bird, being confined to the higher hills.

BUBONIDAE.

32. **Huhua orientalis sumatrana** (Raffles).

Robinson and Kloss, p. 124; Hartert, p. 195.

♀ Mabar Estate, Deli, N. E. Sumatra, 23rd March 1917 [No. 175].

♀ wing, 352 mm.

Sumatran and Malay Peninsula birds agree with each other and are slightly smaller than the typical Javan race *H. o. orientalis* (Raffles). Bornean birds, which at present have no name are rather paler beneath.

33. **Ninox scutulata malaccensis** (Eyton).

Ninox scutulata, Hartert, p. 195.

Robinson, Journ. Fed. Malay States Mus. VII, p. 144 (1917).

♂, 2 ♀ Tandjong Morawa, Serdang, N. E. Sumatra, 27th February—18th March 1917 [Nos. 87, 88, 159].

♂, ♀ Polonia, Deli, N. E. Sumatra, 7th November 1916.

♂ ? ♀ Toentoengan, Deli, N. E. Sumatra, 29th January —31st March 1918 [Nos. 962, 1033].

Wing ♂ 180, 185, 192; ♀, 190, 193, 194, 192.

These owls do not strictly agree with either *N. s. malaccensis* or *N. s. scutulata.* In size and in the character of the white stripes on the under surface, which are not very conspicuous, they are nearest the former; in their upper surface which is darker, with the head rather greyer forming a quite perceptible cap they are closest to *N. s. scutulata,* which is a migratory form. Possibly these specimens represent a resident Sumatran race. For the present we place them with *N. s. malaccensis* on account of their size.

34. **Otus bakkamoena lempiji** (Horsf.).

Pisorhina lempiji, Hartert, p. 196; Robinson and Kloss, p. 125; Robinson op. cit. VII, p. 145 (1917).

2 ♂, ♀ Polonia, Deli, N. E. Sumatra, 26th February—7th April 1917 [Nos. 79, 190, 237].

♂ ♀ juv. No exact locality, 4th May—7th August 1916.

♀ Toentoengan, Deli, N. E. Sumatra, 7th March 1918 [No. 1031].

Wing, ♂ 146, 146, 142; ♀ 143, 152 mm.

These birds seem typical *O. b. lempiji* with the wing less than 160 mm., and not the northern form *O. b. lettia* (Hodgs.) which quite possibly visits Sumatra on migration. The young bird and one other are in the grey, the others in the brown phase of plumage.

35. **Ketupa ketupa** (Horsf.).

Hartert, p. 196.

♂, ♂ imm. Polonia, Deli, N. E. Sumatra, 13th May—6th November 1916 [Nos. —, —].

Wing, ♂, 320 mm.

PSITTACIDAE.

36. Loriculus galgulus (Linn.).

Hartert, p. 196.

♂, ♀ Deli Toewa, Deli, N. E. Sumatra, 1st April—3rd May 1917 [Nos. 203, 347].

2 ♂, 2 ♀ Laboean Deli, Deli, N. E. Sumatra, 24th February 1917 [Nos. 69, 70, 72 and 73].

Wing, ♂ 82, 83; ♀ 79, 82, 83 mm.

CORACIIDAE.

37. Eurystomus orientalis orientalis (Linn.).

Hartert, p. 204.

♂ Helvetia, Deli, N. E. Sumatra, 26th November 1916.

1 ♀ Toentoengan, Deli, N. E. Sumatra, 18th November 1917.

2 ♂, 2 ♀, 1 ♀ imm. Polonia, Deli, N. E. Sumatra, 2nd—10th November 1916 [Nos. 726, 728].

1 spm. No label.

Wing, ♂, 182, 188, 183; ♀, 185, 182, 179 mm.

These birds with comparatively little blue on the outer webs of the primary coverts, the outer secondaries and the terminal half of the tail appear to belong to this western and partially resident form which it is difficult to differentiate with certainty as it is not improbable that some amount of inter-breeding takes place. The subject has been dealt with by Stresemann (*Nov. Zool.* XX, pp. 299-301 (1913)). There appears to be little or no difference in size between the two forms.

38. Eurystomus orientalis calonyx (Sharpe).

Eurystomus calonyx, Sharpe, P. Z. S. 1890, p. 551; id. Cat. Birds Brit. Mus. XVII, p. 38, Pl. II, fig. 2 (1892).

Eurystomus orientalis calonyx, Stresemann, Nov. Zool. XX, pp. 299-301 (1913).

♂ ♀, vix. ad. Toentoengan, Deli, N. E. Sumatra, 13th November 1917—10th December 1917 [Nos. 592, 847].

♂ vix. ad. Polonia, Deli, N. E. Sumatra, 6th November 1916 [No. 757].

Wing, ♂, 184, 187; ♀, 189 mm.

These birds are the brighter form with almost entirely blue primary coverts and much blue on the tail and secondaries which is referred to this sub-species, known as a breeding bird in the Eastern Himalayas and China.

ALCEDINIDAE.

39. **Pelargopsis capensis cyanopteryx** (Oberholser).

Pelargopsis javana fraseri, Hartert, p. 202.

Ramphalcyon capensis cyanopteryx, Oberholser, Proc. U. S. Nat. Mus. XXXV, p. 676 (1909).

2 ♂ Boeloe, Deli, N. E. Sumatra, 26th November—13th December 1916 [Nos. 653, 662].

♂ Tandjong Slamat, Langkat, N. E. Sumatra, 16th February 1918 [No. 1014].

Wing ♂, 145, 141, 142 mm.

In default of large series we have for the present left these specimens under Oberholser's name. We confess however that we cannot appreciate the differences that separate it from *R. c. malaccensis,* with which the above birds can be exactly matched.

40. **Alcedo ispida bengalensis,** Gm.

Hartert, p. 202.

♂, 3 ♀ Polonia, Deli, N. E. Sumatra, 2nd January—22nd February 1917 [Nos. 55, 100, 645-6].

2 ♂, ♀ Tandjong Slamat, Langkat, N. E. Sumatra, 15th—18th February 1918 [Nos. 1021-3].

Wing ♂, 66, 68, 70; ♀, 66, 67, 68, 69 mm.

41. **Alcedo mentinting,** Horsf.

Hartert, p. 202.

2 ♂, Laboean Deli, Deli, N. E. Sumatra, 13th May 1917 [Nos. 372, 373].

— Polonia, Deli, N. E. Sumatra, 14th May 1916 [No. 801].

Wing, ♂, 62, 63 mm.

42 **Ceyx euerythra,** Sharpe.

Ceyx rufidorsa rufidorsa, Strickl., Hart. Nov. Zool. IX, p. 430 (1902).

Ceyx rufidorsa robusta, Parrot Abhand. der Konigl. Bayern. Akad. der Wissensch. II, Kl. XXIV, Bd. I, p. 208 (1907).

3 ♂, ♀, Deli Toewa, Deli, N. E. Sumatra, 7th March—3rd May 1917 [Nos. 119, 196, 329, 339].

Wing, ♂, 59, 62, 58; ♀ 59 mm.

Parrot's *C. r. robusta* cannot be maintained. It was founded on a specimen collected by Martin in an unspecified locality in Sumatra with a wing of 62 mm.

43. **Ceyx dillwynni,** Sharpe.

Hartert, Nov. Zool. IX, p. 431 (1902).

♂, Deli Toewa, Deli, N. E. Sumatra, 5th April 1917 [No. 195].

♀, Tandjong Morawa, Serdang, N. E. Sumatra, 18th March 1917 [No. 167].

Wing, ♂ 59; ♀ 58 mm.

We have referred these specimens to this species on account of the frontal spot of blue, much larger in the male than the female, and the indications of a post-auricular blue patch. Wing coverts are largely black, washed with blue but the median series are red. Scapulars black washed with blue. Rump and back strongly washed with lilac. Both specimens are quite adult.

Ceyx enopopygius, Oberholser, Smiths. Misc. Coll. Vol. 60, No. 7, p. 7 (1912), from Aru Bay, East Sumatra, is probably an immature *Ceyx tridactyla.*

44. **Carcineutes pulchellus** (Horsf.).

Robinson and Kloss, p. 127; Hartert, p. 204.

♂, ♀ Bandar Baroe, Deli, N. E. Sumatra, 5th June 1917 [Nos. 456, 457].

♂, ♀ Tandjong Morawa, Serdang, N. E. Sumatra, 18th March 1917 [No. 164, 165].

♀ Deli Toewa, Deli, N. E. Sumatra, 12th March 1917 [No. 145].

♀ Toentoengan, Deli, N. E. Sumatra, 9th February 1918 [No. 982].

Wing, ♂, 83, 84; ♀, 84, 80, 83, 88 mm.

45. **Halcyon coromanda coromanda** (Lath.).

Entomophora coromanda neophora, Oberholser Proc. U. S. Nat. Mus., 48, p. 646 (1915).

2 ♂, ♀ Polonia, Deli, N. E. Sumatra, 10th—23rd Nov. 1916 [No. 777, —].

♀ Tandjong Morawa, Serdang, N. E. Sumatra, 3rd March 1917 [No. 110].

♂, ♀ Toentoengan, Deli, N. E. Sumatra, 6th—16th February 1918 [975, 1013].

Wing, ♂, 117, 111; ♀, 116, 112, 110 mm.

In colouration these specimens exactly agree with others
ments show cannot be differentiated; Oberholser's measure-
ments show cannot be direrentiated; Oberholser's measurements for mainland birds being 111-118.5 while those in the Selangor Museum range from 105-116 mm. As we have noted elsewhere Oberholser is quite incorrect in stating that these Kingfishers are strictly sedentary as they are certainly capable of crossing the Straits of Malacca at any rate and as a matter of fact have been obtained on small islands in mid-channel, where they are certainly not resident.

46. **Halcyon pileata** (Bodd.).

Hartert, p. 203.

3 ♂, ♀ vix. ad. Polonia, Deli, N. E. Sumatra, 10th—23rd November 1916 [Nos. 734, 775, 776].

♀, Gambir, Deli, N. E. Sumatra, 8th December 1917 [No. 843].

♂, Tandjong Morawa, Serdang, N. E. Sumatra, 3rd March 1917 [No. 109].

Wing, ♂, 128, 123, 128, 127; ♀, 128, 128 mm.

47. **Halcyon concreta** (Temm.).

Hartert, p. 204.

♂ ♀ Tandjong Morawa, Serdang, N. E. Sumatra, 3rd March 1917 [Nos. 107-8].

♀ Deli Toewa, Deli, N. E. Sumatra, 5th April 1917 [No. 204].

♀ Toentoengan, Deli, N. E. Sumatra, 7th February 1918 [No. 976].

Wing, ♂, 104; ♀, 105, 109, 108.

As a rule a bird of heavy jungle and not found in open country like *H. pileata*.

48. **Halcyon chloris** (Bodd.).

Robinson and Kloss, p. 128; Hartert, p. 203.

5 ♂, 2 ♀, Laboean Deli, Deli, N. E. Sumatra, 24th Feb.—13th May 1917 [Nos. 61-4, 365-7].

Wing, ♂, 96, 97, 98, 100, 102; ♀, 98, 98 mm.

Some of these specimens have the head and interscapulium greener than others; all have the wings deep blue. Two have the flanks slightly washed with fawn but this is not improbably due to stain. In any event we are convinced that it is impracticable to split up into races the Indo-Malayan specimens of this group.

BUCEROTIDAE.

49. **Anorhinus galeritus** (Temm.).

Robinson and Kloss, p. 129; Hartert, p. 201.

♂ imm., ♀, Deli Toewa, Deli, N. E. Sumatra, 7th Feb. 1917 [Nos. 11, 13].

50. **Buceros rhinoceros**, Linn.

Hartert, p. 201.

♀, Deli Toewa, Deli, N. E. Sumatra, 5th April 1917 [No. 217].

We have never seen specimens of the rare form *B. silvestris* Vieill., from Sumatra, which differs in having the casque longer and almost straight and in the broader subterminal black band on the tail.

51. **Dichoceros bicornis** (Linn.).

Hartert, p. 201.

2 ♂, ♀, Deli Toewa, Deli, N. E. Sumatra, 1st—30th April 1917 [Nos. 215, 216, 333].

Identical with specimens from the Northern Malay Peninsula. Rare in the southern third.

52. **Anthracoceros convexus** (Temm.).

Hartert, p. 201.

♂, Tandjong Morawa, Serdang, N. E. Sumatra, 27th February 1917 [No. 81].

2 ♀, ♀, Deli Toewa, Deli, N. E. Sumatra, 9th February 1917—2nd May 1917 [Nos. 12, 335-6].
♀, Polonia, Deli, N. E. Sumatra, 16th June 1916 [?].
♂, Toentoengan, Deli, N. E. Sumatra, 5th February 1918 [No. 972].

Females are very much smaller than males especially as regards the casque, and have a rufous brown patch towards the base of the lower mandible.

53. **Anthracoceros malayanus** (Raffles).
Hartert, p. 201.
♂, Boeloe, Deli, N. E. Sumatra, 27th November 1916.
♀, Toentoengan, Deli, N. E. Sumatra, 9th February 1918 [No. 781].

Rarer than most of the other Hornbills.

54. **Cranorrhinus corrugatus** (Temm.).
Hartert, p. 201.
♂, Toentoengan, Deli, N. E. Sumatra, 2nd December 1917 [No. 838].

A rare species everywhere.

55. **Rhytidoceros undulatus** (Shaw).
Robinson and Kloss, p. 129; Hartert, p. 201.
♂, ♀, Boeloe, Deli, N. E. Sumatra, 26th—27th November 1916.
♂, Bandar Baroe, N. E. Sumatra, 17th April 1917 [No. 284].

Usually found at considerable elevations.

56. **Rhinoplax vigil** (Forst.).
Hartert, p. 201; Wetmore, Proc. U. S. Nat. Mus. 47, p. 497 (1914).
♂, Deli Toewa, Deli, N. E. Sumatra, 5th May 1917 [No. 334].

Wetmore (*loc. cit.*) has noted that this species never moults its two median tail feathers simultaneously. In the present specimen one is fully developed and much abraded on its terminal half while the other is only about one fourth grown.

Malays and Chinese value the casque of this species highly for magical and medicinal purposes.

MEROPIDAE.

57. **Merops viridis,** Linn.
Merops sumatranus, Hartert, p. 202.
Robinson and Kloss, p. 130.
♂, Deli Toewa, Deli, N. E. Sumatra, 16th November 1916 [No. 783].
♂, Laboean Deli, Deli, N. E. Sumatra, 24th February 1917 [No. 71].

♂, Gambir, Deli, N. E. Sumatra, 9th December 1917 [No. 846].

4♂, 6♀, 1♂, ♀ imm., Polonia, Deli, N. E. Sumatra, 15th May 1916—29th March 1917 [Nos. 784, 705, 741, 20, 31, 94, 95, 96, 680, 191, 781].

♂, No Label, 23rd May 1916.

♀, Tandjong Slamat, Langkat, N. E. Sumatra, 15th February 1918 [No. 997].

Wing, ♂ 110, 112, 108, 107, 113, 108, 115, 114; ♀ 109, 112, 108, 107, 109, 108 mm.

This is the bird usually known as *Merops sumatranus,* Raffles. Dr. Hartert has however proved that it had been described as *Merops viridis* by Linnaeus from Java in 1758 which name has of course priority.

58. **Merops philippinus,** Linn.

Hartert, p. 202.

♂, 3♀, Polonia, Deli, N. E. Sumatra, 16th December 1916—21st January 1917 [Nos. 654, 744, 636, 102].

Wing, ♂ 130; ♀ 122, 126, 129 mm.

Probably migratory in Sumatra and the Malay Peninsula, certainly commoner in both countries in the winter months.

59. **Nyctiornis amicta**(Temm.).

Robinson and Kloss, p. 130; Hartert, p. 202.

2♂, ? Deli Toewa, Deli, N. E. Sumatra, 8th February 1917—6th April 1917 [No. 197-8, 324].

♂ ♀ imm., Polonia, Deli, N. E. Sumatra, 1st July 1916—2nd November 1916.

♂, Boeloe, Deli, N. E. Sumatra, 17th November 1917 [No. 601].

♀, Tandjong Slamat, Langkat, N. E. Sumatra, 20th February 1918 [No. 1006].

Wing, ♂, 123, 126, 125, 127; ♀, 122, 122 mm.

Common all over the forested districts of Sumatra, Borneo and the Malay Peninsula and very constant in its characters.

CAPRIMULGIDAE.

60. **Caprimulgus affinis,** Horsf.

Robinson and Kloss, p. 131.

♂, ♀, Polonia, Deli, N. E. Sumatra, 27th May—8th Nov. 1916 [Nos. 793, 423, —].

♀, Gambir, Deli, N. E. Sumatra, 9th December 1917 [No. 844].

Wing, ♂, 158; ♀, 167, 163 mm.

Not found in the Malay Peninsula.

61. **Caprimulgus macrurus ambiguus,** Hartert.

Caprimulgus macrurus, Hartert, p. 204.

Caprimulgus macrurus anamesus (part) Oberholser Proc. U. S. Nat. Mus. 48, p. 595 (1915).

2 ♂, ♂ imm., Polonia, Deli, N. E. Sumatra, 24th October 1916—5th February 1917 [Nos. 642, 718, 820].

Wing, ♂, 205, 194, 177 (imm.) mm.

It is evident that these specimens belong to the race for which on insufficient grounds Mr. Oberholser has revived the name *C. bimaculatus,* Peale, which despite his arguments we now believe to have come from Singapore as originally stated. The size of these specimens shows that the character of size relied on to separate the races is not sufficient and that, as occurs in hundreds of other instances, we have here a case of a species regularly diminishing in size from north to south. If the two races are maintained we think that the southern will have to be called *C. m. bimaculatus* of which *C. m. anamesus* will become a pure synonym.

CYPSELIDAE.

62. **Collocalia innominata,** Hume.

♂, Polonia, Deli, N. E. Sumatra, 4th August 1916 [No. 818].

♂, Wing, 128 mm.

Not separable from specimens from the coasts and mountains of the Malay Peninsula.

63. **Collocalia linchi cyanoptila,** Oberholser.

Proc. Acad. Nat. Sci. Philad. LVIII, p. 205.

3 ♂, ? Toentoengan, Deli, N. E. Sumatra, 9th—11th February 1918 [Nos. 983-5, 989].

Wing, ♂, 98, 98, 97 mm. ? 99.

Except that they are a little smaller, these birds exactly agree with specimens from the Malay Peninsula. In size they would appear to agree with *C. l. affinis,* Beavan, from the Andamans and Nicobars but differ slightly in colour.

64. **Hemiprocne longipennis harterti,** Stresemann.

Robinson and Kloss, p. 132.

Macropteryae longipennis, Hartert, p. 205.

2 ♂, ♀, Polonia, Deli, N. E. Sumatra, 4th August—21st October 1916 [Nos. 706, 755, 763].

Wing, ♂, 172, 168; ♀, 163 mm.

Common in Sumatra as in the Malay Peninsula but hard to secure.

65. **Hemiprocne comata** (Temm.).

Macropteryx longipennis, Hartert, p. 205.

♂, Deli Toewa, Deli, N. E. Sumatra, 28th April 1917 [No. 331].

Wing, ♂, 124 mm.

TROGONIDAE.

66. **Pyrotrogon duvauceli** (Temm.).

Robinson and Kloss, p. 137; Hartert, p. 200.
2 ♂, ♀, Deli Toewa, Deli, N. E. Sumatra, 7th March—30th April 1917 [Nos. 325, 134, 141].
♂, Toentoengan, Deli, N. E. Sumatra, 26th December 1917 [No. 883].
♂, Tandjong Slamat, Langkat, N. E. Sumatra, 19th February 1918 [No. 1015].
Wing, ♂, 96 (worn), 100, 103, 108; ♀, 102 mm.
Not differing from Malay Peninsula birds.

67. **Hapalarpactes mackloti** (S. Muell).

Robinson and Kloss, p. 134.
♂ imm., 2 ♀, Bandar Baroe, Deli, N. E. Sumatra, 14th April—19th May 1917 [Nos. 255, 394]; 21st January 1918 [No. 956].
Wing, ♂, 132; ♀, 127, 134 mm.

An essentially mountain genus of which the only other species *H. rheinwardti,* is found in the mountains of West Java. The immature male has large white tips to some of the wing coverts.

CUCULIDAE.

68. **Coccystes coromandus** (Linn.).

Hartert, p. 199 (1902).
4 ♂, 2 ♀, Polonia, Deli, N. E. Sumatra, 10th November 1916—17th March 1917 [Nos. 21, 27, 154, 633, 743, 778].
Wing, ♂, 154, 159, 163, 157; ♀, 160, 162 mm.

Only found in the Malayan Region during the winter months.

69. **Surniculus lugubris brachyurus**, Stresemann.

Surniculus lugubris, Hartert, p. 199.
Robinson and Kloss, p. 134.
♀, Toentoengan, Deli, N. E. Sumatra, 22nd November 1917 [No. 628].
♂, Tandjong Slamat, Langkat, N. E. Sumatra, 19th February 1918 [No. 1026]
Wing, ♂, 118; ♀, 136 mm.

The only example measurable has a tail of 122, so that the specimens probably belong to this race.

70. **Hierococcyx fugax nisicolor** (Horsf.).

Hierococcyx fugax, Hartert, p. 199.
♂ ad. Deli Toewa, N. E. Sumatra, 2nd May 1917 [No. 337].

♂, Tandjong Slamat, Lankat, N. E. Sumatra, 19th Feb. 1918 [No. 1000].

Wing, 173, 174 mm.

These birds appears to be the migratory Indian form and not typical *H. f. fugax,* which was described from Java, but in the absence of authentic specimens of the latter it is difficult to be certain.

71. **Cuculus concretus** (S. Muell.).

Hartert, t. c. p. 199.

♂ ad. Deli Toewa, Deli, N. E. Sumatra, 2nd May 1917 [No. 338].

♀ imm., Bandar Baroe, Deli, N. E. Sumatra, 23rd May 1917 [No. 407].

Wing, ♂ ad. 156 mm.

We are inclined to regard these specimens as representing a resident Malayan form of *C. micropterus,* just as *C. insulinde* Hartert, is the resident tropical form of *C. intermedius.*

72. **Cuculus micropterus,** Gould.

Gould, P. Z. S. 1837, p. 137.

♀, Deli Toewa, Deli, N. E. Sumatra, 6th February 1917 [No. 6].

♀, Tandjong Slamat, Langkat, N. E. Sumatra, 19th February 1918 [No. 999].

Wing, ♀ 186, 197 mm.

Almost certainly a migrant.

73. **Penthoceryx sonnerati pravaata** (Horsf.).

Cacomantis sonnerati pravatus, (Horsf.).

Robinson and Kloss, p. 135.

♂, ♀, Polonia, Deli, N. E. Sumatra, 2nd May 1916—23rd April 1917 [Nos. 300, 797].

♂, Deli Toewa, Deli, N. E. Sumatra, 2nd April 1917 [No. 202].

Wing, ♂, 104, 109; ♀, 103 mm.

Everywhere rather rare.

74. **Cacomantis sepulchralis sepulchralis** (S. Muell).

Robinson and Kloss, p. 135.

♀ vix. ad. Polonia, Deli, 20th November 1916 [No. 716].

Wing, ♀, 104 mm.

This bird can be distinguished from the succeeding by its darker grey head, and by having the rufous of the under surface carried up almost to the chin.

75. **Cacomantis merulinus merulinus** (Scop.).

Stresemann, Nov. Zool. XIX, pp. 332-334 (1912).

Cacomantis merulinus, Hartert, p. 199.

2 ♂, ♀, Polonia, Deli, N. E. Sumatra, 19th November 1916—26th April 1917 [Nos. 105, 316, 766].

Wing, ♂, 97.5, 96; ♀, 98 mm.

These birds are paler beneath and smaller than those from the Malay Peninsula for which in the north the name *C. m. querulus,* Hume, is applicable while southern birds have been named *C. m. threnodes,* Cab. and Heine.

76. Centropus sinensis bubutus, Horsf.

Centropus bubutus, Horsfield, Trans. Linn. Soc. XIII, p. 180 (1821); Stresemann Nov. Zool. XX, p. 322 (1913).

Centropus eurycercus, Hartert, p. 200.

♀, Deli Toewa, Deli N. E. Sumatra, 10th March 1917 [No. 127].

♀, Tandjong Morawa, Serdang, N. E. Sumatra, 27th March 1917 [No. 181].

Wing, ♀, 226, 233 mm.

77. Centropus bengalensis javanensis (Dumont).

Robinson and Kloss, p. 139.

Centropus javanensis, Hartert, p. 199.

♂, 2 ♀. No exact locality, 20th April—23rd May 1916.

2 ♂, ♀ imm., ♀, Toentoengan, Deli, N. E. Sumatra, 14th November—30th December 1917; 15th January—7th February 1918 [Nos. 593, 891, 916, 971].

6 ♂, 5 ♀, pull. Polonia, Deli, N. E. Sumatra, 7th June 1916—31st October 1917 [Nos. 30, 116, 189, 422, 541-2, 547, 575, 670, 738, 779].

Wing, ♂, 131, 132, 135, 132, 136, 138, 138, 139, 140, 141; ♀ 150, 152, 157, 154, 154, 158, 160, 163.

Common in long grass and lalang. As in other species of the genus females are consistently larger than males.

78. Rhopodytes tristis elongatus (S. Muell).

Robinson and Kloss, p. 136.

3 ♂, 2 ♀, Bandar Baroe, Deli, N. E. Sumatra, 18th May 1917; 21st—27th January 1918 [Nos. 375, 376, 917, 918, 919].

Wing, ♂, 148, 145, 145; ♀, 150, 148 mm.

A mountain form.

79. Rhopodytes diardi (Less.).

Robinson and Kloss, p. 137; Hartert, p. 199.

♀, Tandjong Morawa, Serdang, N. E. Sumatra, 16th October 1917 [No. 563].

2 ♂, 2 ♀, Polonia, Deli, N. E. Sumatra, 23rd August 1916—31st October 1917 [Nos. 576, 733, —, —].

2 ♂, Toentoengan, Deli, N. E. Sumatra, 23rd November 1917—4th February 1918 [Nos. 828, 970].

♂ ♂ No exact locality, 26th April—15th May 1916.

Wing, ♂, 124, 131, 127, 124, 127, 131; ♀, 126, 125, 128 mm.

Common in secondary jungle.

80. Rhinortha chlorophaea (Raffles).

Robinson and Kloss, p. 138; Hartert, p. 199.

4 ♂, 2 ♀, Toentoengan, Deli, N. E. Sumatra, 22nd Nov. 1917—7th January 1918 [626-7, 829, 877, 880, 908].

♀, Deli Toewa, Deli, N. E. Sumatra, 30th April 1917 [No. 326].

2 ♀, Boeloe, Deli, N. E. Sumatra, 27th November—13th December 1916 [Nos. 655-6].

Wing, ♂, 115, 112, 110, 112; ♀, 111, 100, 112, 114, 114 mm.

Common in secondary scrub over nearly the whole Malayan Region.

81. Urococcyx erythrognathus (Hartl.).

Phoenicophoes erythrognathus, Hartl., Verz. Samml. Mus. Bremen, 1844, p. 95; Hartert, p. 199.

Rhamphococcyx curvirostris singularis, Parrot, Abhandl. der Konigl. Bayern Akad. der Wissensch. II, Kl. XXIV, Bd. I, p. 186 (1907).

♂ ♀, Toentoengan, Deli, N. E. Sumatra, 15th January 1918 [Nos. 912-913].

♂ ♀, Deli Toewa, Deli, N. E. Sumatra, 7th February—5th April 1917 [Nos. 9, 209].

♂ ♀, Tandjong Morawa, Serdang, N. E. Sumatra, 27th February 1917 [No. 89].

2 ♀, No exact locality, 13th June—2nd July 1916.

Wing, ♂, 173, 172; ♀, 174, 164, 172, 166, 166 mm.

We do not for a moment believe that any form of the Javan *Rhinococcyx curvirostris* occurs in Sumatra. Parrot does not mention the form of the nostrils of his sub-species which is practically the only difference between the Javan and Sumatran birds but which is generally regarded as of generic and not merely specific value.

CAPITONIDAE.

82. Calorhamphus hayi (J. E. Grey).

Robinson and Kloss p. 139; Hartert, p. 196.

5 ♂, 2 ♀, Deli Toewa, Deli, N. E. Sumatra, 19th July 1916—3rd May 1917 [Nos. 203-4, 317-9, 340].

2 ♂, 2 ♀, Toentoengan, Deli, N. E. Sumatra, 12th Nov. 1917 [Nos. 586-89].

Wing, ♂, 77, 81, 82, 81, 82, 82, 81; ♀, 82, 80, 77, 82 mm.

Besides the difference in the colour of the bill, which in the male is black and in the female light corneous, the former sex has the head and throat more strongly washed with brick-red, though never approaching the Bornean form *C. fuliginosus* (Temm.).

83. **Chotorhea chrysopogon chrysopogon** (Temm.).
Robinson and Kloss, p. 140.
Megalaema mystacophanes, Hartert, p. 196.
♂ ♀, Tandjong Morawa, Serdang, N. E. Sumatra, 19th February [Nos. 38, 39].
2 ♂, 2 ♀, Polonia, Deli, N. E. Sumatra, 3rd—26th Nov. 1916 [Nos. 697, 732, 781].
1 spm. No exact locality, 10th August 1916.
Wing, ♂, 131, 128, 130; ♀, 134, 132, 125 mm.

The Malay Peninsula bird *C. ch. laetus,* Robinson and Kloss, differs in having the yellow malar patch considerably richer in tint.

84. **Chotorhea mystacophanes mystacophanes** (Temm.).
Megalaema mystacophanes, Hartert, p. 196.
♂, Toentoengan, Deli N. E. Sumatra, 15th November 1917 [No. 598].
♀, Deli Toewa, Deli, N. E. Sumatra, 30th March 1917 [No. 207].
♂ imm., Tandjong Morawa, Serdang, N. E. Sumatra, 12th May 1917 [No. 364].
♀ ad, ♂ 2 ♀ imm. No exact locality, 24th January—27th May 1916.
Wing, ♂, 97, 98; ♀, 94, 96 mm.

We can distinguish no differences between adult birds from Borneo, Sumatra and the southern parts of the Malay Peninsula.

85. **Cyanops oorti oorti** (S. Muell.).
Robinson and Kloss, p. 141.
♂, 4 ♀, Bandar Baroe, Deli, N. E. Sumatra, 10th April—20th May 1917 [Nos. 256-7, 395-6, 442].
Brastagi, Simeloengan, N. E. Sumatra, 19th June 1917 [No. 493].
Wing, ♂, 88, 87; ♀, 91, 91, 91, 92 mm.

86. **Mesobucco duvauceli duvauceli** (Less.).
Mesobucco duvauceli (Less.), Robinson and Kloss, p. 141.
♂, ♀, Tandjong Morawa, Serdang, N. E. Sumatra, 19th February—18th March [Nos. 33, 169].
Wing, ♂, 73; ♀, 72 mm.
The typical form.

87. **Xantholaema haemacephala** (P. L. S. Muell.).
Megalaema haemacephala, Hartert, p. 196.
Robinson and Kloss, p. 142.
Bucco rafflesius, Boie, Brief Ost. Ind. No. 15 (1832)
♀ imm., Brastagi, Simeloengan, N. E. Sumatra, 16th June 1917 [No. 490].
4 ♀, Toentoengan, Deli, N. E. Sumatra, 17th November—26th December 1917 [Nos. 603, 618, 836, 885].

2 ♂, 2 ♀, Polonia, Deli, N. E. Sumatra, 28th October 1916—8th January 1917 [Nos. 666, 692, 803, —].

♂, Tandjong Morawa, Serdang, N. E. Sumatra, 27th March 1917 [No. 184].

♀, Gambir, Deli, N. E. Sumatra, 8th December 1917 [No. 842].

♂. No exact locality, 1st May 1916.

2? No exact locality.

Wing, ♂, 74, 74, 77, 76; ♀, 76, 80, 76, 74, 74, 73 mm.

The differences between this bird and its continental representative have already been pointed out but until Philippine and Sumatran specimens have been directly compared and found to differ it is not advisable to apply the name *X. h. rafflesius* to the Sumatran form.

88. **Psilopogon pyrolophus** (S. Muell.).

Robinson and Kloss p. 143.

♂, Si Bajak, Deli, N. E. Sumatra, 18th June 1917 [No. 504].

8 ♂, 3 ♀, Bandar Baroe, Deli, N. E. Sumatra, 11th April 1917—26th January 1918 [Nos. 258-262, 486, 936-940].

Wing, ♂, 119, 116, 126, 120, 121, 118, 124, 125, 121; ♀, 122, 121, 122 mm.

PICIDAE.

89. **Gecinus vittatus** (Vieill.).

Hartert, p. 197.

2 ♀, Laboean Deli, Deli, N. E. Sumatra, 13th May 1917 [Nos. 370-1].

Wing, ♀, 122, 127 mm.

Identical with specimens from the southern third of the Malay Peninsula which have been found not to differ from topotypes from Java.

90. **Gauropicoides rafflesi rafflesi** (Vig.).

Hartert, p. 198.

♂, ♀, Tandjong Morawa, Serdang, N. E. Sumatra, 18th March—23rd April 1917 [Nos. 166, 303].

♀, Toentoengan, Deli, N. E. Sumatra, 18th December 1917 [No. 861].

Wing, ♂, 137; ♀, 133, 138 mm.

Hesse (Ornith. Monatsb. 19, p. 192 (1911) has separated the Malayan form as *Gauropicoides rafflesi peninsularis* on the ground that the rump and upper tail coverts are flecked with red. This is not very conspicuous in our single male from Gunong Angsi, but both it and four females from the Peninsula differ from the Sumatran series in being more golden green above so that the race may stand.

Bornean birds are given a name, *G. f. borneonensis,* as being smaller, having the wing 125.5-135 mm. against 139-147 in the two other races.

A male and a female from Sarawak measure 123 and 130 mm. respectively, while a male and four females from the Peninsula are 139, 139, 140, 144 and 138 so that this race also is probably valid. The Sarawak birds are also darker above.

91. **Brachylophus puniceus observandus** (Hartert).

Gecinus puniceus observandus, Hartert, p. 198.

♂ imm., Tandjong Morawa, Serdang, N. E. Sumatra, 23rd April 1917 [No. 307].

2 ♂, ♀, Toentoengan, Deli, N. E. Sumatra, 16th—19th November 1917 [Nos. 963, 600, 614]|.

♂, Polonia, Deli, N. E. Sumatra, 20th November 1916 [No. 708].

♂, Gambir, Deli, N. E. Sumatra, 8th December 1917 [No. 845].

♂, ♀, Deli Toewa, Deli, N. E. Sumatra, 3rd April 1917 [No. 230].

Wing, ♂, 115, 123, 118, 122, 119; ♀, 116, 117 mm.

Malayan and Sumatran birds differ from the typical Javan form in having the mantle and back flecked with bright yellow and not uniform olive green.

92. **Brachylophus chlorolophus vanheysti,** subsp. nov.

♂ vix. ad. ♀, Bandar Baroe, Deli, N. E. Sumatra, 12th April 1917—27th January, 1918 [Nos. 254, 941].

♀ ad., Gunong Talaman (Mt. Ophir), Padang, W. Sumatra, 1300 m., 11th June 1917 [No. 1081]. E. Jacobson [C]. Types of the subspecies Nos. 254 and 1081].

♂. Intermediate between *B. chlorolophus chlorolophus* from the Himalayas and Burma and *B. c. rodgeri* (Hart. and Butler) from the mountains of the Malay Peninsula. Differs from the former in its smaller size and from the latter in its much brighter colour above and below; ear coverts distinctly greenish not dark ashy brown as in eight specimens of *B. c. rodgeri* examined. Green of the upper surface with a very distinct golden tinge, not uniform olive. Wing, 132: bill from gape, 29.5 mm.

♀. Differs from the ♀ of *B. c. rodgeri* in the same way as the male. Measurements in flesh:—Total length, 249; tail, 104; wing, 124; bill from gape, 29.5; tarsus, 20 mm. "Iris brownish-strawberry red, bill strawberry yellow, culmen greyish black, tarsi greyish olive green" (Jacobson).

On comparison this race is sufficiently distinct from *B. c. rodgeri* but is closer to *B. c. chlorolophus.* It has been recorded from Sumatra by Hesse under the former name.

93. Iyngipicus auritus (Eyton).

Robinson and Kloss, p. 145.

Iyngipicus moluccensis, Hartert, p. 197.

♂, 3 ♀, Polonia, Deli, N. E. Sumatra, 5th May—22nd April 1917 [Nos. 301, 790].

Wing, ♂, 71.5; ♀, 72, 73 mm.

It is we think best to use this name for this species which is found in Java, Sumatra, Borneo and the Malay Peninsula rather than that founded on *Picus moluccensis,* Gm. which probably applies, but about which much uncertainty has arisen.

94. Lepocestes porphyromelas (Boie).

Robinson and Kloss, p. 145.

Blythipicus porphyromelas, Hartert, p. 198.

♂, 2 ♀, Bandar Baroe, Deli, N. E. Sumatra, 17th May 1917—21st January 1918 [Nos. 397, 920, 921].

Wing, ♂, 118; ♀, 114, 113 mm.

Very constant throughout its range, which includes the whole of the Malay Peninsula from Southern Tenasserim, Sumatra and Borneo.

95. Miglyptes tukki (Less.).

Robinson and Kloss, p. 146; Hartert, p. 197.

2 ♂, Tandjong Morawa, Serdang, N. E. Sumatra, 3rd—18th March 1917 [Nos. 113, 168].

♂ ♀, Polonia, Deli, N. E. Sumatra, 22nd April 1916 [Nos. 721, 798].

Wing, ♂, 92, 93, 95; ♀, 92 mm.

Not differing in any way from specimens from the Malay Peninsula.

96. Miglyptes tristis grammithorax (Malh.).

Miglyptes grammithorax, Hartert, p. 197.

♂, ♀, Tandjong Morawa, Serdang, N. E. Sumatra, 3rd March 1917 [Nos. 114-5].

2 ♀, Deli Toewa, Deli, N. E. Sumatra, 13th March—3rd April 1917 [Nos. 144, 233].

2 ♀, Toentoengan, Deli, N. E. Sumatra, 27th November 1916 and 4th February 1918 [Nos. 729, 967].

♂, Polonia, Deli N. E. Sumatra, 27th May 1916.

Wing, ♂, 89, 95; ♀, 89, 91, 93, 96, 95, 93 mm.

Malay Peninsula specimens measure:

Wing, ♂, 100, 93, 94, 94, 92; ♀, 93, 95, 93, 94, 96 mm.

Birds from Sarawak and Borneo measure:—

Wing, ♂, 91; ♀, 86, 85.

The Bornean birds have been separated by Hesse as *Miglyptes tristis micropterus* (Ornith. Monatsb. XIX, p. 182 (1911), as having the wing shorter, 85-96 mm. as against 95-103.5 in the typical form which was described from the Malay Peninsula. The distinction is fine but the above measurements tend to confirm it.

Females of all races seem to differ from the male in the absence or less intensity of the black ventral patch in addition to the absence of the red malar stripe.

97. **Micropternus brachyurus badius** (Raffles).

Robinson and Kloss, p. 146.

Micropternus brachyurus, Hartert, p. 197.

♂, Deli Toewa, Deli, N. E. Sumatra, 3rd April 1917 [No. 232].

♂, Tandjong Morawa, Serdang, N. E. Sumatra, 3rd March 1917 [Nos. 117, 605].

2 ♂, ♀, Toentoengan, Deli, N. E. Sumatra, 12th—17th November 1917—4th February 1918 [Nos. 585, 969].

2 ♀, Polonia, Deli, N. E. Sumatra, 26th October 1916—9th January 1917 [Nos. 689, 786].

♂, ♀ imm. No exact locality, 18th April—9th May 1916.

Wing, ♂, 112, 109, 111, 109; ♀, 103, 102, 109, 117.

Comparison of this series and others from the Malay Peninsula show that the former are more chestnut bay, but we are unable to say whether Sumatran and Javan birds differ, the latter locality being the type locality of *M. brachyurus brachyurus,* Vieill. For the present we leave the Sumatra birds under Raffles' name, while those from the Malay Peninsula must be called *M. b. squamigularis,* Sundev., if distinct.

Even in the present series there is much variation in the amount of squamulation of the throat which seems to be most pronounced in females and in the younger birds, very old specimens having a tendency to uniformity.

98. **Tiga javanensis javanensis** (Ljung).

Robinson and Kloss, p. 147; Hartert, p. 198.

♂, Tandjong Morawa, Serdang,, N. E. Sumatra, 18th March 1917 [No. 163].

♂, 4 ♀, Toentoengan, Deli, N. E. Sumatra, 23rd November—23rd December, 1917 [Nos. 823-5, 832, 875].

4 ♂, 3 ♀, Polonia, Deli, N E. Sumatra, 19th April—25th May 1917.

Wing, ♂, 130, 128, 126, 127, 126, 125; ♀, 125, 125, 127, 127, 126, 126, 122 mm.

99. **Chrysophlegma miniatum malaccense** (Lath.).

Robinson and Kloss, p. 148; Hartert, p. 197.

♂, Tandjong Morawa, Serdang, N. E. Sumatra, 27th February 1917 [No. 91].

♀, Toentongan, Deli, N. E. Sumatra, 25th November 1917 [No. 832].

2 ♂ ad., 2 pull, Polonia, Deli, N. E. Sumatra, 2nd May—27th June 1916.

♂, Bandar Baroe, Deli, N. E. Sumatra, 24th January 1918 [No. 953].

Wing, ♂, 121, 116, 127, 125; ♀, 122 mm.

Slightly smaller than the average of specimens from the southern Malay Peninsula where the race progressively increases in size towards the north.

100. Chrysophlegma mystacale, Salvad.

Robinson and Kloss, p. 147.

3 ♂, 2 ♂ imm, 3 ♀, Bandar Baroe, Deli, N. E. Sumatra, 13th April—4th October 1917 [Nos. 250-1, 287, 381-2, 414, 424, 441].

♂, Brastagi, Simeloengan, N. E. Sumatra, 18th June 1917 [No. 500].

♂, Tengkeh, Simeloengan, N. E. Sumatra, 25th June 1918 [No. 1049].

Wing, ♂, 143, 146, 138, 145, 149; ♀, 144, 141, 140 mm.

A mountain species, allied to *Ch. wrayi* from the Malay Peninsula and *Ch. ricketti* from the south of China but distinct. The present specimens do not differ from those from West Sumatra.

101. Chrysophlegma mentale humii, Hargitt.

Chrysophlegma mentale humii, Hartert, p. 198.

♂ vix ad., Toentoengan, Deli, N. E. Sumatra, 8th Feb. 1918 [No. 978].

Wing, ♂, 132 mm.

This specimen is darker than a series from the Malay Peninsula and differs even more widely from the Javan form *C. mentale* (Temm.).

102. Chrysocolaptes validus xanthopygius (Finsch).

Robinson and Kloss, p. 148.

Xylolepes validus, Hartert, p. 197.

♂, ♀, Deli Toewa, Deli, N. E. Sumatra, 7th May 1917 [Nos. 342, 3].

♂, ♀, Bandar Baroe, Deli, N. E. Sumatra, 14th April 1917—23rd January 1918 [Nos. 252, 943].

Wing, ♂, 152, 151; ♀, 142, 163 mm.

Subspecifically Bornean, Malayan and Sumatran birds are quite distinct from the typical Javan bird which has the rump in the male deep crimson not rich orange.

103. Hemicercus concretus coccometopus (Reichenb.).

Hemicercus sordidus, Hartert, p. 197.

♂, Tandjong Morawa, Serdang, N. E. Sumatra, 23rd April 1917 [No. 306].

♂, Toentoengan, Deli, N. E. Sumatra, 17th November 1917 [No. 602].

♂, 3 ♀, Deli Toewa, Deli, N. E. Sumatra, 9th February —6th May 1917 [Nos. 2, 3, 322, 341].

Wing, ♂, 81, 84.5, 82; ♀, 80, 80, 81.5 mm.

Hesse (Ornith. Monatsb. XIX, p. 183 (1911) has separated the Sumatran and Bornean form from the Malayan as having the wing smaller, 82-86.5 mm. against 83.5-91 mm. on the typical form under the name *Hemicercus sordidus coccometopus,* Reichenb.†

Malay Peninsula specimens measure as follows:—

Wing, ♂, 84, 83.5, 81, 84.5, 88; ♀, 89, 85, 88, 85 mm.

The differences therefore do just exist though whether such minute differences should be recognised even subspecifically is a very open point.

104. **Sasia abnormis everetti,** Hargitt.

♂, Polonia, Deli, N. E. Sumatra, 20th April 1916 [No. 808].

♂, Tandjong Slamat, Langkat, N. E. Sumatra, 18th February 1918 [No. 1024].

Wing, ♂, 48.5, 48 mm.

Agreeing with Bornean, Sumatran and Malayan specimens. We have not yet seen good typical birds from Java.

PITTIDAE.

105. **Pitta cucullata,** Hartl.

♂, Toentoengan, Deli, N. E. Sumatra, 18th December 1917 [No. 860], "feet grey, bill dark corneous" (Van Heyst).

Wing, 110 mm.

P. muelleri, Bp., a form with the head entirely black, common in Borneo, is also recorded from Sumatra by Hagen and Wallace. It is however not improbably the intermediate race, *P. bangkana,* Schlegel, in which the feathers of the head are black with more or less clearly defined chestnut tips. We cannot separate the present specimen from a large series of Malayan birds.

106. **Pitta cyanoptera,** Temm.

Pitta moluccensis, Hartert, p. 206.

♂, Deli Toewa, Deli, N. E. Sumatra, 9th March 1917 [No. 118].

♀, Gambir, Deli, N. E. Sumatra, 8th December 1917 [No. 841].

Wing, 118, 112.

A common bird at certain times along both coasts of the Straits of Malacca apparently migrating across them.

EURYLAEMIDAE.

107. **Psarisomus dalhousiae psittacinus,** (S. Muell.).

Robinson and Kloss, p. 149.

2 ♂, 4 ♀, Bandar Baroe, Deli, N. E. Sumatra, 19th April 1917—5th June 1917—20th January 1918 [Nos.

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† *Scans. Picinae,* p. 401, pl. DCLVI, figs. 4364-5, ♂ ♀ ad (1854).

283, 284, 443-445].
Wing, ♂, 97, 97; ♀, 95, 92, 98, 93 mm.

108. **Serilophus lunatus intensus,** Rob. & Kloss.
Robinson and Kloss, p. 150.
♂, Bandar Baroe, Deli, N. E. Sumatra, 6th June 1917 [No. 451].
Wing, ♂, 83 mm.

Agrees well with the typical series and others since received from West Sumatra.

109. **Eurylaemus javanicus harterti,** Van Oort.
Notes Leyden Mus. XXXI, p. 209 (1909).
Eurylaemus javanicus, Hartert, p. 206.
♂ ♀, Deli Toewa, Deli, N. E. Sumatra, 2nd—28th April 1917 [Nos. 225, 323].
2 ♂, Toentoengan, Deli, N. E. Sumatra, 24th December 1917—8th February 1918 [Nos. 879, 973].
♂ ♀, Tandjong Slamat, Langkat, N. E. Sumatra, 20th February 1918 [Nos. 1018, 1019].
Topotypes of the sub-species.
Wing, ♂, 106, 105, 104, 103; ♀, 100, 98 (worn) mm.

Malay Peninsula birds agree with these. We have not yet examined typical birds from Java in which the under tail-coverts are pure yellow not vinaceous as in those from all other localities.

110. **Eurylaemus ochromelas,** Raffles.
Robinson and Kloss, p. 151; Hartert, p. 206.
2 ♂, 2 ♀, Tandjong Morawa, Serdang, N. E. Sumatra, 27th February—18th March 1917 [Nos. 85-6, 160-1].
♂, ♀, Deli Toewa, Deli, N. E. Sumatra, 6th March 1917 [Nos. 120-1].
Wing, ♂, 76, 78, 74; ♀, 78, 74, 76 mm.

Females are distinguished from males by having the black gorget across the upper breast interrupted.

111. **Corydon sumatranus sumatranus** (Raffles).
Hartert, p. 206.
♂, 2 ♀, Tandjong Morawa, Deli, N. E. Sumatra, 24th February 1917 [Nos. 82-84].
♂, Toentoengan, Deli, 2nd February 1918 [No. 966].
Wing, ♂, 129, 127; ♀, 131, 134 mm.

The Bornean form has recently been separated as *Corydon sumatranus brunnescens,* Hartert (Bull. Brit. Orn. Club, XXXVII, p. 4; 1916).

112. **Cymborhynchus macrorhynchus macrorhynchus** (Em.).
Robinson and Kloss, p. 151; Hartert, p. 205.
♀, Bandar Baroe, Deli, N. E. Sumatra, 9th June 1917 [No. 472].

2 ♂, Toentoengan, Deli, N. E. Sumatra, 7th January 1918 [Nos. 906-7].

3 ♂, 2 ♀, Tandjong Morawa, Serdang, N. E. Sumatra, 19th February—29th June 1917 [Nos. 36-7, 311, 544-5].

♂, ♀ ? Polonia, Deli, N. E. Sumatra, 30th June 1916.

♂, ♀, Tandjong Slamat, Langkat, N. E. Sumatra, 17th February 1918 [Nos. 1016, 1017].

Wing. ♂, 100, 100, 97, 101, 99, 98; ♀, 99, 98, 102, 97, 96 mm.

These birds vary a good deal in the amount of white on their tails, one from Bandar Baroe having practically none while others have spots on four outer pairs. On the whole, however, there is less white than in Malayan and more white than in West Sumatran specimens. Of the large number of specimens available from all localities, those of Borneo certainly have least, and those from the Northern Malayan Peninsula most. Unless a new name is to be given to these birds, which is undesirable, their position can be best expressed by the somewhat cumbrous nomenclautre used by Stresemann as *Cymborhynchus macrorhynchus lemniscatus malaccensis,* Salvad.

HIRUNDINIDAE.

113. **Hirundo rustica gutturalis,** Scop.

Robinson and Kloss, p. 154; Hartert, p. 205.

2 ♂, Deli Toewa, Deli, N. E. Sumatra, 16th October 1916 [Nos. 810-1].

♂, Toentoengan, Deli, N. E. Sumatra, 16th December 1917 [No. 858].

Wing, ♂, 109, 112 mm.

The specimen from Toentoengan is deeper pinky buff beneath with a fairly regular black collar on the fore neck. It is possibly a specimen of the true *H. r. rustica,* Linn., on migration. It is, however, heavily in moult and as no exact dimensions can be obtained it is impossible to be certain.

114. **Hirundo javanica javanica** (Sparrm.).

Robinson and Kloss, p. 154; Hartert, p. 207.

♂ ♀, Polonia, Deli, N. E. Sumatra, 1st July—1st Sept. 1916 [Nos. 750, 812].

Wing, ♂, 103, 98 mm.

We are not prepared for the present to divorce Sumatran birds from the typical *H. j. javanica* from Java. We cannot, however, separate the above specimens from birds from the Malay Peninsula which Oberholser (Bull. U. S. Nat. Mus. No. 98, p. 33 (1917) regards as identical with *H. domicola,* Jerdon, described from the Nilgiri Hills.*

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* Madras Journ. Lit, and Sci. XIII Pt. I, No. 30 p. 173 (1844.)

MUSCICAPIDAE.

115. **Alseonax latirostris** (Raffles).

Hartert, p. 213.

♂, ♀, Toentoengan, Deli, N. E. Sumatra, 5th January —1st February 1918 [Nos. 905, 965].

Wing, ♂, 71; ♀, 68 mm.

A common winter visitor.

116. **Cyornis unicolor infuscata**, Hartert.

Robinson and Kloss, p. 155.

♂, ♀, Bandar Baroe, Deli, N. E. Sumatra, 7th—10th June 1917 [Nos. 467, 480].

Wing, ♂, 79; ♀, 73 mm.

Always very local and somewhat rare. Javan, Sumatran, Bornean and Malayan birds present no tangible differences.

117. **Cyornis cantatrix** (Temm.).

Robinson and Kloss, p. 154.

♂, Tandjong Morawa, Serdang, N. E. Sumatra, 12th May 1917 [No. 362].

Better known as *Cyornis elegans* (Temm.) over which name this has slight priority. A rare bird everywhere except apparently in Borneo from which island we have numerous specimens.

118. **Cyornis vanheysti**, sp. nov.

A heavy-billed form, male plumage entirely blue, female probably rufous olive with rufous brown chest and whitish belly.

Adult male. Above deep "indigo blue" (Ridgway) rump and upper tail coverts and angle of the wing shining sapphire blue ("Blanc's blue," Ridgway). Primaries and tail feathers dusky black, edged with blue lightest on the tail, frontal region and an indistinct supraocular stripe brighter blue, lores black, ear coverts blackish blue. Throat pale indigo, breast dark sapphire blue, abdomen and tail coverts whitish grey, flanks bluish grey, under wing coverts and axillaries dusky tipped with blue; thighs blue. "Iris dark, bill black; feet plumbeous" (*Van Heyst*).

Wing, 78; tail, 67; bill from gape, 22.5 (app.); tarsus, 18 mm.

An immature male, changing into the adult plumage, has the head fuscous, each feather with rufous centres; lores dusky; frontal region, supercilium chin, throat, and upper breast ferruginous; wing coverts dusky, broadly tipped with ferruginous; quills dusky edged with pale ferruginous; abdomen white, flanks and under tail coverts pale ferruginous.

Wing, 79; tail, 64; bill from gape, 21.5; tarsus, 18.5 mm.

♂ ad (*type*) Toentoengan, Deli, N. E. Sumatra, 10th February 1918 [No. 986].

♂ imm., Deli Toewa, Deli, N. E. Sumatra, 4th April 1917 [No. 229].

This species is quite distinct from all other of the genus to specimens or descriptions of which we have access. It has an even coarser bill than *C. magnirostris* from the Malay Peninsula and is totally distinct from *C. unicolor* a form of which occurs together with it. It may possibly be referable to *C. ruecki,* Oustalet, Bull. Soc.. Philom. (7) V. p. 78 (1881), from Kessang, Malacca, which to the best of our knowledge is only known from the types in Paris.

119. Niltava grandis decipiens, Salvad.

Robinson and Kloss, p. 157.

Niltava grandis, Hartert, p. 213.

2 ♂ ad, 2 ♀ ad, 1 ♂ imm., Bandar Baroe, Deli, N. E. Sumatra, 23rd May—10th June 1917 [Nos. 415-6, 419, 431, 440, 482].

♂ imm., Brastagi, Simeloengan, N. E. Sumatra, 20th —29th June 1917 [Nos. 527, 1037].

♂ imm., Bras Tagi, Simeloengan, N. E. Sumatra, 19th June 1917 [No. 502].

♀, Sibajak, Simeloengan, N. E. Sumatra, 18th June 1917 [No. 503].

Wing, ♂, 91, 92, 87; ♀, 87, 88, 90 mm.

A Himalayan form, of which this race is found in Tenasserim, the mountains of the Malay Peninsula and Sumatra where it is widely distributed at altitudes not less than 3000 feet.

120. Poliomyias mugimuki (Temm.).

Robinson and Kloss, p. 158.

? vix. ad., Bandar Baroe, Deli, N. E. Sumatra, 25th January 1918 [No. 958].

? Wing, 68 mm.

A migrant common in Sumatra and the Malay Peninsula in the winter months.

121. Hypothymis azurea prophata, Oberholser.

Robinson and Kloss, p. 162.

Hypothymis azurea, Hartert, p. 213.

♂, Deli Toewa, Deli, N. E. Sumatra, 31st March 1917 [No. 234].

2 ♂. No exact locality, 5th April 1916—23rd May 1916.

♂, Tandjong Slamat, Langkat, N. E. Sumatra, 20th February 1918 [No. 998].

Wing, ♂, 69, 70, 71, 68 mm.

122. Rhipidura albicollis atrata, Salvad.

2 ♂, Bandar Baroe, Deli, N. E. Sumatra, 19th May 1917 —20th January 1918 [Nos. 389, 957].

Wing, ♂, 71, 80 mm.

A mountain form.

123. Rhipidura javanica (Sparrm.).

Hartert, p. 213.

1 spm. No particulars.

2 ♀, Polonia, Deli, N. E. Sumatra, 2nd September 1916— 17th March 1917 [Nos. 772, 155].

Toentoengan, Deli, N. E. Sumatra, 15th November 1917 [No. 599].

Wing, ♂, 73, 76 mm.

A common garden bird known to the Peninsular Malays as the "mad thrush" (*murai gila*) from its restless, jerky movements.

124. Terpsiphone affinis incii (Gould).

♂, Toentoengan, Deli, N. E. Sumatra, 19th December 1917 [No. 863].

♂, 87 mm.

Distinguished at once from the corresponding plumage of *T. affinis incii* by the deep maroon tint of the interscapulary region.

125. Terpsiphone paradisi affinis (Blyth).

Robinson and Kloss, p. 163.

♂ imm., Deli Toewa, Deli, N. E. Sumatra, 9th March 1917 [No. 135].

Wing, ♂, 84 mm.

A young bird in the rufous plumage with short tail.

126. Philentoma pyrrhoptera (Temm.).

Robinson and Kloss, 164; Hartert, p. 213.

♂, Toentoengan, Deli, N. E. Sumatra, 14th December 1917 [No. 855].

♂, Deli Toewa, Deli, N. E. Sumatra, 2nd May 1917 [No. 348].

♀, Tandjong Slamat, Langkat, N. E. Sumatra, 20th February 1918 [No. 1020].

Wing, ♂, 81, 79 mm.

127. Rhinomyias olivacea brunneicauda (Salvad.).

Robinson and Kloss, p. 164.

2 ♀, Bandar Baroe, Deli, N. E. Sumatra, 17th April 1917 —5th June 1917 [Nos. 289, 466].

Wing, 74, 71 mm.

These birds are identical with those we have previously placed under this name: whether they are strictly the same as Salvadori's type is a little doubtful.

128. Culicicapa ceylonensis (Swains.).

Robinson and Kloss, p. 165.

♂, Sibajak, Simeloengan, N. E. Sumatra, 18th June 1917 [No. 509].

♂, Tengkeh, Simeloengan, N. E. Sumatra, 20th June 1917 [No. 524].

♀, Bandar Baroe, Deli, N. E. Sumatra, 20th January 1918 [No. 928].

Wing, ♂, 61, 60 mm.

In Sumatra this species seems not to occur at quite low elevations as it does in the Malay Peninsula.

129. Cryptolopha trivirgata trivirgata (Strickl.).

Robinson and Kloss, p. 167.

♂, Brastagi, Simeloengan, N. E. Sumatra, 21st June 1917 [No. 538].

Wing, ♂, 60 mm.

Sumatran birds are identical with the tyical form from West Java. The mountains of the Malay Peninsula are inhabited by a slightly differentiated form *C. t. parvirostris* (Stresemann).*

130. Stoparola indigo ruficrissa, Salvad.

Robinson and Kloss, p. 169.

♂, Brastagi, Simeloengan, N. E. Sumatra, 18th June 1917 [No. 507].

Wing, ♂, 73 mm.

There is no representative form of this bird in the mountains of the Malay Peninsula though it has very close allies in Java and North Borneo.

131. Stoparola thalassinoides (Cab.).

Robinson and Kloss, p. 170.

♂, Bandar Baroe, Deli, N. E. Sumatra, 10th June 1917 [No. 479].

♂, ♀, Deli Toewa, Deli, N. E. Sumatra, 31st March—1st April 1917 [Nos. 223-4].

♂, Toentoengan, Deli, N. E. Sumatra, 4th January 1918 [No. 899].

Wing, ♂, 73, 73, 74; ♀, 73 mm.

Females are a duller blue without the silvery verditer sheen of the males.

CAMPOPHAGIDAE.

132. Lalage fimbriata culminata (A. Hay).

Hartert, p. 207; Robinson and Kloss, p. 173.

1 ♂, subad., Toentoengan, Deli, N. E. Sumatra, 18th November 1917 [No. 609].

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* Nov. Zool XIX, p. 323 (1919).

Wing, 91 mm.

This example agrees with specimens from the Malay States: further north in the Peninsula (about lat. 7°) this race merges into *L. f. neglecta* (Hume).

133. Lalage terat (Bodd.).

Robinson and Kloss, p. 173; Hartert, p. 207.

♂, Tandjong Morawa, Serdang, N. E. Sumatra, 18th March 1917 [No. 162].

4 ♂, ♂ imm., 3 ♀, Polonia, Deli, N. E. Sumatra, 16th June 1916—3rd February 1917 [Nos. 657, 707, 758, 780, 788, —, —, —].

Wing, ♂, 83, 84, 86, 86, 87; ♀, 83, 82, 86 mm.

An open country bird probably partially migratory: in the Malay Peninsula it is certainly commoner during the winter months.

134. Graucalus sumatrensis sumatrensis (S. Muell.).

Hartert, p. 207.

♂. No exact locality.

Wing, ♂, 150 mm.

A very adult bird with not the slightest trace of barring on the under tail-coverts.

135. Artamides melanocephalus (Salvad.).

Robinson and Kloss, p. 170.

♂ ♀, Tengkeh, Deli, N. E. Sumatra, 20th June 1917 [Nos. 529, 530].

Wing, ♂, 147; ♀, 141 (worn) mm.

A rare species of which comparatively few specimens from the mountains of West Sumatra are on record.

136. Pericrocotus xanthogaster (Raffles).

Robinson and Kloss, p. 171; Hartert, p. 207.

2 ♂, Deli Toewa, Deli, N. E. Sumatra, 16th October 1916—6th March 1917 [Nos. 125, 710].

♂, 2 ♀, Toentoengan, Deli, N. E. Sumatra, 21st November 1917 [Nos. 622-624].

♂ ♀. No exact locality, 7th May 1916.

Wing, ♂, 87, 83, 82, 83; ♀, 82, 80, 81 mm.

Represented in the Northern parts of the Peninsula by *Pericrocotus flammifer,* Hume, which is only a slightly differentiated subspecies.

137. Pericrocotus montanus, Salvad.

Robinson and Kloss, p. 172.

♂, Bandar Baroe, Deli, N. E. Sumatra, 24th May 1917 [No. 409].

Wing, ♂, 78 mm.

Found at high elevations in Sumatra, Borneo and the Malay Peninsula. A very variable species, the colour of the throat varying from light grey to almost black.

138. Pericrocotus igneus, Blyth.

Hartert, p. 207.

♂, ♂ imm., Deli Toewa, Deli, N. E. Sumatra, 16th October 1916—2nd April 1917 [Nos. 232, —].

Wing, ♂, 73, 72 mm.

In the Malay Peninsula this species is a low-country bird often found among Casuarinas on the sea shore. It does not appear to be very common anywhere.

139. Pericrocotus cinereus, Lafr.

Hartert, p. 207.

♂, ♀, Polonia, Deli, N. E. Sumatra, 4th November 1916 [Nos. 664, —].

Wing, ♂, 92; ♀, 94 mm.

A migratory bird only found in Sumatra and the Malay Peninsula during the winter months.

PYCNONOTIDAE.

140. Aegithina tiphia viridis(Bp.).

Hartert, p. 212.

♂, ♀. No exact locality.

2 ♂, ♀, Bandar Baroe, Deli, N. E. Sumatra, 8th June [Nos. 468-70].

2 ♂, ♀, Toentoengan, Deli, N. E. Sumatra, 17th—19th November 1917 [Nos. 604, 616-7].

♂, Deli Toewa, Deli, N. E. Sumatra, 8th March 1917 [No. 129].

Wing, ♂, 58, 58, 60, 60, 61; ♀, 59, 61, 60, 63, 58 mm.

The last specimen from Deli Toewa is a handsome zanthotic variety in which the black parts have become a pearly grey while the rest of the plumage is a rich canary yellow slightly tinged with green on the upper parts.

141. Chloropsis icterocephala(Less.).

Hartert p. 212.

3 ♂, 2 ♀, Deli Toewa, Deli, N. E. Sumatra, 9th March—30th April 1917 [Nos. 130, 226-7, 320-1].

2 ♂, ♀, Toentoengan, Deli, N. E. Sumatra, 30th December, 1917—5th January 1918 [Nos. 889, 901-2].

♂, Tandjong Slamat, Langkat, N. E. Sumatra, 17th February 1918 [No. 1007].

Wing, ♂, 86, 82, 83, 84, 78, 87; ♀, 78, 77, 79 mm.

142. Chloropsis viridis zosterops(Vig.).

Hartert, p. 211.

♂, Boeloe, Deli, N. E. Sumatra, 27th November 1916 [No. 730].

♂. No exact locality, 3rd June 1916.

Wing, ♂, 94, 95 mm.

143. Chloropsis cyanopogon (Temm.).

Hartert, p. 212.

2 ♀, Deli Toewa, Deli, N. E. Sumatra, 2nd April—2nd May 1917 [Nos. 228, 349].

Wing ♀, 76, 77 mm.

144. Chloropsis media (Bp.).

Robinson and Kloss, p. 175.

♂, Bandar Baroe, Deli, N. E. Sumatra, 16th April 1917 [No. 201].

Wing, ♂, 91 mm.

Apparently strictly an upland species.

145. Hemixus sumatranus (Wardl. Rams.).

Robinson and Kloss, p. 176.

♂, 4 ♀, Bandar Baroe, Deli, N. E. Sumatra, 6th May—6th June 1917 [Nos. 387, 413, 414, 458, 460].

♀, Tengkeh, Simeloengan, N. E. Sumatra, 20th June 1917 [No. 528].

♀, Sibajak, Simeloengan, N. E. Sumatra, 18th June 1917 [No. 494].

Wing, ♂, 85; ♀, 85, 86, 84, 84, 87 mm.

A very distinct species from *H. malaccensis* which is also stated to occur in Sumatra.

146. Alcurus leucogrammicus (S. Muell.).

Robinson and Kloss, p. 178.

3 ♂, 4 ♀, Bandar Baroe, Deli, N. E .Sumatra, 12th April —30th May 1917, 21st January 1918 [Nos. 246-7, 299, 388, 428-9, 54].

Wing, ♂, 81, 79, 80; ♀, 78, 81, 76, 80 mm.

A species peculiar to the mountains of Sumatra.

147. Iole olivacea, Blyth.

Iole olivacea, Sharpe, Cat. Birds Brit. Mus. VI, p. 55 (1881).

♂, Toentoengan, Deli, N. E. Sumatra, 14th December 1917 [No. 855*a*].

♀, Tandjong Slamat, Langkat, N. E. Sumatra, 13th February 1918 [No. 1008].

Wing, ♂, 82 mm.; ♀, 84 mm.

148. Euptilosus euptilosus, (Jard. and Selby).

Pinarocichla euptilosa, Sharpe, Cat. Birds Brit. Mus. VI, p. 62 (1881).

148. Euptilosus euptilosus (Jard. and Selby.).

♂, Tandjong Morawa, Serdang, N. E. Sumatra, 12th May 1917 [No. 361].

♂, Deli Toewa, Deli, N. E. Sumatra, 2nd April 1917 [No. 219].

Wing, ♂, 88, 87 mm.

The Sumatran specimens seem rather whiter beneath than Malayan and Bornean birds with the flanks less washed with grey.

149. **Microtarsus melanocephalus** (Gm.).

Robinson and Kloss, p. 178; Hartert, p. 211.

3 ♂, ♀, Tandjong Morawa, Serdang, N. E. Sumatra, 27th March—23rd April 1917 [Nos. 185-6, 304-5].

♂, Deli Toewa, Deli, N. E. Sumatra, 11th March 1917 [No. 142].

Wing, ♂, 78, 76, 78, 75; ♀, 76 mm.

A common low-country bird very constant in its characters. Females have the middle of the belly and lower tail-coverts very much duller yellow than in the male.

150. **Criniger sumatranus**, Wardl. Rams.

Criniger gutturalis, Hartert, p. 210.

Robinson and Kloss, p. 178.

4 ♂, 5 ♀, Bandar Baroe, Deli, N. E. Sumatra, 11th April —9th June 1917, 20th—24th January 1918 [Nos. 243, 385-6, 449-50, 476, 950-2].

Deli Toewa, Deli, N. E. Sumatra, 28th April 1917 [No. 328].

Wing, ♂, 109, 107, 113, 104; ♀, 106, 106, 112, 103 mm.

Allied to *C. tephrogenys* (Jard. and Selby) of the Malay Peninsula and *C. ruficrissus* (Sharpe) of Borneo but quite distinct from both.

151. **Alophoixus phaeocephalus** (Hartl.).

Criniger phaeocephalus, Hartert, p. 210.

♂, ♀, Tandjong Morawa, Serdang, N. E. Sumatra, 18th March 1917 [Nos. 171-2].

♂, Deli Toewa, Deli, N. E. Sumatra, 28th April 1917 [No. 327].

Wing, ♂, 86, 90; ♀, 94 mm.

Bornean, Sumatran and Malayan specimens exhibit no differences whatever on comparison.

152. **Tricholestes criniger** (A. Hay).

Sharpe, Cat. Birds Brit. Mus. VI, p. 89 (1881).

3 ♂, 2 ♀, Toentoengan, Deli, N. E. Sumatra, 13th Dec. 1917—10th February 1918 [Nos. 854, 803, 895-7, 987].

Wing, ♂, 79, 76, 80 mm.

153. **Trachycomus ochrocephalus** (Gm.).

Robinson and Kloss, p. 179; Hartert, p. 210.

2 ♂. No exact locality, 5th—7th May 1916.

2 ♂, ♀, Toentoengan, Deli, N. E. Sumatra, 15th Nov.—16th December 1917 [Nos. 597, 619, 859].

Wing, ♂, 113, 117, 117, 116; ♀, 117 mm.

Birds from Borneo, Sumatra, and the Malay Peninsula do not seem to differ. We have not examined specimens from Java, which is the typical locality.

154. **Pycnonotus bimaculatus** (Horsf.).

Robinson and Kloss, p. 180.

2 ♂, ♀, Brastagi, Simeloengan, N. E. Sumatra, 21st June 1917 [Nos. 533-5].

Wing, ♂, 80; ♀, 78, 84 mm.

The specimens are rather immature but are not separable from typical West Javan and West Sumatran birds; they are rather lighter below than any of a large series from Korinchi and the Preanger Regencies but this is probably a character of age. The East Javan form *P. bimaculatus tenggerensis* is slightly different in having the ear coverts less extensively washed with yellow.

155. **Pycnonotus aurigaster** (Vieill).

Pycnonotus aurigaster, Sharpe, Cat. Birds Brit. Mus. VI, p. 137 (1881).

♂, ♀, Polonia, Deli, N. E. Sumatra, 18th November 1916 [Nos. 720, 745].

Wing, ♂, 95; ♀, 89 mm. (worn).

We have compared these birds with typical specimens from Western Java with which they agree. The species has not hitherto been recorded from Sumatra but has not improbably been introduced from Java. (*vide portea* p. 61).

156. **Pycnonotus analis** (Horsf.).

Robinson and Kloss, p. 179.

Pycnonotus goiavier analis, Hartert, p. 210.

3 ♂, 4 ♀, Polonia, Deli, N. E. Sumatra, 22nd April 1916—26 March 1917 [Nos. 148, 779, 180, 673, 792, —, —].

1 spm. No particulars.

♀, Toentoengan, Deli, N. E. Sumatra, 17th November 1917 [No. 595].

♂, Tandjong Morawa, Serdang, N. E. Sumatra, 23rd April 1917 [No. 315].

Wing, ♂, 81, 86, 85, 82 (worn); ♀, 82, 81, 86, 82 mm.

Malayan, Bornean, Javan and Sumatran specimens all seem inseparable.

157. **Pycnonotus plumosus,** Blyth.

Robinson and Kloss, p. 181.

2 ♀, Tandjong Morawa, Serdang, N. E. Sumatra, 12th May 1917 [Nos. 357-8].

♂, Laboean Deli, Deli, N. E. Sumatra, 24th February 1917 [No. 74].

♂, Toentoengan, Deli, N. E. Sumatra, 23rd December 1917 [No. 876].

Wing, ♂, 82, 79; ♀, 79, 79 mm.

This species seems more constant in its characters than allied species and fewer subspecies exist. These specimens are inseparable from *P. plumosus* of the Malay Peninsula.

158. **Pycnonotus brunneus brunneus** (Blyth.).

Oberholser. U. S. Nat. Mus. Bull. No. 98, p. 46 (1917).

Pycnonotus simplex, Hartert, p. 210.

♀ ? Tandjong Morawa, Serdang, N. E. Sumatra, 16th—23rd October 1917 [Nos. 309, 561].

♂, ♀, Toentoengan, Deli, N. E. Sumatra, 19th December 1917—8 February 1918 [Nos. 865, 6, 980].

♀, No exact locality, 27th May 1916.

Wing, ♂, 81, 82; ♀, 74, 81, 81.

We have, pending a revision of the whole group, followed Oberholser (loc. cit.) in regarding the form of this bird with squamate pileum, reddish eyes and dull brownish undersurface as referable to Blyth's race of which we have examined the greatly deteriorated type.

159. **Pycnonotus erythrophthalmos cyanochrous,** Oberholser.

Smiths. Misc. Coll. Vol. 60, No. 7, p. 10 (1912).

Pycnonotus salvadorii, Hartert, p. 210.

♂, Deli Toewa, Deli, N. E. Sumatra, 4th April 1917 [No. 221].

2 ♂, 2 ♀, Toentoengan, Deli, N. E. Sumatra, 19th December 1917 [Nos. 864, 873, 977].

♂ ? Tandjong Slamat, Langkat, N. E. Sumatra, 20th February 1918 [Nos. 1009, 1012].

Wing, ♂, 72, 72, 70, 75 mm. ♀, 74 mm.

This race, as Oberholser states, is darker above and greyer beneath than the typical race from the Malay Peninsula and Tenasserim. That author also says that it is smaller; but the dimensions of the large series in the F. M. S. Museums, which range from 70-76 mm. in wing length, do not bear out his statements in this respect.

160. **Rubigula dispar** (Horsf.).

Robinson and Kloss, p. 182; Hartert, p. 210.

2 ♂, Bandar Baroe, Deli, N. E. Sumatra, 9th June 1917 [Nos. 478, 478*a*].

8 ♂, ♀, Deli Toewa, Deli, N. E. Sumatra, 10th March—4th May 1917 [Nos. 131-3, 138-140, 235, 345-6].

Wing, ♂, 82, 79, 81, 78, 81, 79, 82, 80, 82, 78 mm.

Evidently very common.

TIMELIIDAE.

161. Garulax palliatus (Temm.).

Robinson and Kloss, p. 184.

♂, Tengkeh, Simeloengan, N. E. Sumatra, 17th June 1917 [No. 520].

Wing, 128 mm.

162. Garrulax bicolor (Hartl.).

Robinson and Kloss, p. 183; Hartert, p. 213.

1 ♂, 2 ♀ ad., 1 ♂, 1 ♀ imm., Bandar Baroe, Deli, N. E. Sumatra, 14th April—6th June 1917, 21st January 1917 [Nos. 253, 377-380, 404, 405, 427, 446, 931-2].

1 ♀, Brastagi, Simeloengan, N. E. Sumatra, 19th June 1917 [No. 519].

Wing of adult ♂, 126, 117, 120, 121, 123, 124, 123, 128; ♀, 120, 122 mm.

Very common all over Sumatra above about 1,500 feet. Immature birds differ from adult in having the tips of the feathers of the breast and belly white, so that the white gorget is much less clearly defined from the black breast and belly: gape apparently bright yellow.

163. Melanocichla lugubris (S. Muell.).

Robinson and Kloss, p. 185.

6 ♂, 1 ♀, Bandar Baroe, Deli, N. E. Sumatra, 14th April —6th June 1917 [Nos. 271, 2, 286, 398-9, 454, 455].

Wing, ♂, 124, 127, 121, 125, 121, 124; ♀, 122.

164. Rhinocichla mitrata (S. Muell.).

Robinson and Kloss, p. 186.

8 ♂, 3 ♀ ad.; 1 ♀ imm., Bandar Baroe, Deli, N. E. Sumatra, 11th April—12th June 1917 [Nos. 263-270, 448, 474, 947].

Wing, ♂, 97, 102, 95, 97, 99, 97, 97, 100; ♀, 101, 95, 99.

No. 264 is a very immature female and entirely lacks the grey tips to the feathers of the forehead and has the chest washed with rufous.

165. Malacocincla sepiaria sepiaria (Horsf.).

Buttikofer, Notes Leyden Mus. XVII, p. 81 (1895); Robinson and Kloss, p. 187.

♂, ♀, Bandar Baroe, Deli, N. E. Sumatra, 4th—7th June 1917 [Nos. 461, 462].

Wing, ♂, 69; ♀, 72 mm.

These two birds agree with each other and with a ♂ from E. Java with which we have compared them. All have a marked greyish black cap, the middle of the belly white and the flanks and crissum dull brownish rufous. The Malayan birds, of which we have a large series, have no marked cap and have the flanks and crissum much brighter. They have been named *Malacocincla sepiaria tardinata* by Hartert.* Bornean birds *Malacocincla sepiaria rufiventris* (syn *Turdinus tephrops,* Sharpe) are brighter still and are very distinct.

166. **Turdinus loricatus** (S. Muell.).

Sharpe, Cat. Birds Brit. Mus. VII, p. 550; Robinson, Journ. Fed. Malay States Mus. ii, p. 199 (1909).

Turdinus marmoratus, Wardl. Rams. P. Z. S. 1880, p. 15.

2 ♂, ♀, Bandar Baroe, Deli, N. E. Sumatra, 13th April—23rd May 1917 [Nos. 248, 248*a*, 412].

Wing, ♂, 97, 96; ♀, 97 mm.

Apparently common in heavy jungle at moderate elevations in Sumatra as we have seen numerous specimens from the west coast. Also found in the Malay Peninsula between 2—4,000 ft. in bamboo jungle but local and not numerous. We can detect no differences between Sumatran and Malayan specimens.

167. **Aethostoma rostratum** (Blyth).

Robinson and Kloss, p. 189.

♂, Tandjong Morawa, Serdang, N. E. Sumatra, 11th May 1917 [No. 356].

♂, Deli Toewa, Deli, N. E. Sumatra, 1st November 1917 [No. 578].

Wing, ♂, 64; ♀, 66 mm.

Sumatran and typical Malay Peninsula birds are identical: the Bornean bird judging from a single male from Anyut Paku, Saribas, S. W. Sarawak, seems a little smaller and decidedly more rufous on the rump and tail.

168. **Aethostoma buttikoferi** (Vorderm.).

Trichostoma buttikoferi, Buttikofer, Notes Leyden Mus. XVII, p. 89 (1895).

♂, Deli Toewa, Deli, N. E. Sumatra, 7 May 1917 [No. 351].

Wing, 67 mm.

This specimen agrees well with Buttikofer's description of the type and only other recorded specimen from the Lampongs, S. E. Sumatra.

169. **Setaria cinerea** (Eyton).

Malacopteron cinereum, Hartert, p. 212.

♀, Deli Toewa, Deli, N. E. Sumatra, 30th April 1917 [No. 332].

3 ♂, ♀, Tandjong Slamat, Langkat, N. E. Sumatra, 15th—19th February 1918 [Nos. 1001-4].

Wing, ♂, 77, 75, 72 (imm.); ♀, 73, 72 mm.

A common low-country bird.

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* Bull. Brit. Orn Club, XXXVI, p. 35 (1915)

170. **Setaria affinis affinis** (Blyth).

Kloss, Journ. Fed. Malay States Mus. IV, p. 162 (1911).

♂, 2 ♀, Tandjong Morawa, Deli, N. E. Sumatra, 18th March—12th May 1917 [Nos. 170, 314, 359].

2 ♂ ad., ♀ imm., Deli Toewa, Deli, N. E. Sumatra, 19th July 1916—1st November 1917 [Nos. 220, 573, 773].

Wing, ♂, 74, 73; ♀, 75, 71, 69.

We can detect no differences between Malayan and Sumatran birds. Old birds have the cap deep black and it is to these that the name *Malacopteron melanocephalum* was applied by Davison. The Bornean form is slightly larger and has a dull, or less marked, cap with the tail and upper tail coverts much richer rufous and has been named *Setaria* (*Alcippe*) *cinereocapilla* by Salvadori.* It is unlikely that this form and *S. affinis* both occur in Sarawak.

171. **Turdinus rufipectus**, Salvad.

Robinson and Kloss, p. 187.

? Deli, N. E. Sumatra (label lost) [No. 510].

Wing, 92 mm.

A common mountain form on the west coast apparently rarer on the east.

172. **Erythrocichla bicolor** (Less.).

Sharpe, Cat. Birds Brit. Mus. VII, p. 551 (1883); Robinson and Kloss, p. 188.

2 ♂, Toentoengan, Deli, N. E. Sumatra, 26th December—4th January 1918 [Nos. 884-900].

Wing, 82, 82 mm.

Common in Sumatra whence it was originally described and in the Malay Peninsula. The Bornean form has a slightly duller forehead and has been recently described by Dr. Hartert as *Erythrocichla bicolor whiteheadi*.

173. **Thringorhina striolata** (S. Muell.).

Robinson and Kloss, p. 195.

2 ♂, 5 ♀, Bandar Baroe, Deli, N. E. Sumatra, 18th May 1917—26th January 1918 [Nos. 402, 438, 465, 922-5].

♀, Sibajak, Simeloengan, N. E. Sumatra, 18th June 1917 [No. 506].

Wing, ♂, 66, 67, 68, 66, 69; ♀, 66, 67, 65 mm.

174. **Stachyris larvata** (S. Muell.).

Robinson and Kloss, p. 192.

4 ♂, 2 ♀, Bandar Baroe, Deli, N. E. Sumatra, 19th May—12th June 1917, 20th—27th January 1918 [Nos. 403, 435, 6, 481, 926-7].

♂, Brastagi, Simeloengan, N. E. Sumatra, 29th June 1918 [No. 1052].

Wing, ♂, 54, 57, 58, 57; ♀, 55, 55 mm.

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* H. H. R. Acad. Sci. Torino, III, p. 530 (1868).

175. Stachyris poliocephala (Temm.).

Sharpe, t.c., p. 534.

2 ♀, Deli Toewa, Deli, N. E. Sumatra, 28th—30th April 1917 [Nos. 222, 330].

Wing, 67, 69 mm.

The Malayan and Bornean races both differ slightly from the Sumatran form which is that originally described by Temminck.

176. Stachyridopsis chrysaea bocagei (Salvad.).

Robinson and Kloss, p. 193.

2 ♀, Bandar Baroe, Deli, N. E. Sumatra 6th—7th June 1917 [Nos. 463, 4].

Wing, 49, 50.

Widely distributed all over the higher hills of Sumatra. Represented by several closely allied races in the hill ranges from the Himalayas to the south of the Malay Peninsula.

177. Sibia picaoides simillima (Salvad).

Robinson and Kloss, p. 202.

4 ♂, 2 ♀, Bandar Baroe, Deli, N. E. Sumatra, 12th April —12th June 1917, 27th January 1918 [Nos. 276-8, 290; 485, 942].

Tengkeh, Simeloengoen, N. E. Sumatra, 20th June 1917 [No. 523].

♀, Laoe Goembah, Brastagi, Simeloengan, N. E. Sumatra, 25th June 1918 [No. 1046].

Wing, ♂, 117, 114, 117, 112; ♀, 110, 110.

Closely allied forms are found in Tenasserim (*Sibia picaoides picaoides*) and in the mountains of the Malay Peninsula (*Sibia picaoides wrayi*, Grant). The present bird is widely spread in the hill regions of Sumatra.

178. Macronus ptilosus ptilosus, Jard. and Selby.

Robinson and Kloss, p. 196.

Macronus ptilosus, Hartert, p. 213.

♂, Tandjong Morawa, Serdang, N. E. Sumatra, 11th May 1917 [No. 355].

Wing, 66 mm.

This bird with others from the west coast agrees with a series from the Malay Peninsula whence it was originally described and not with the recently separated from *Macronus ptilosus reclusus*, Hartert, from Borneo which differs in having a slaty grey patch in the middle of the abdomen and the head of a lighter rufous chestnut.*

179. Mixornis rubricapillus sumatrana, Bp.

Robinson, Journ. Fed. Malay States Mus. VII, p. 177; Robinson and Kloss, p. 196.

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* Bull. Brit. Orn Club, XXXVI, p. 36 (1915).

Mixornis gularis, Hartert, p. 213.

♂, Tandjong Morawa, Serdang, N. E. Sumatra, 12th May 1917 [No. 360].

♂ ? Toentoengan, Deli, N. E. Sumatra, 18th—22nd November 1917 [Nos. 607, 630].

1 spm. No label.

Wing, 58, 58, 55, 59 mm.

Agree well with other specimens from West Sumatra and are just separable by their heavier striping and richer yellow colouring beneath from birds from Malacca and the extreme south of the Peninsula (*M. r. pileata*, Blyth).

180. Arrenga castaneus (Wardl. Rams.).

Robinson and Kloss, p. 197.

2 ♂, 2 ♀, Bandar Baroe, Deli, N. E. Sumatra, 20th—21st May 1917 [Nos. 400-1, 410, 411].

Wing, ♂, 143, 141; ♀, 138, 135 mm.

Apparently fairly common throughout the mountainous districts of Sumatra as, besides the specimens enumerated in the paper quoted above, we have received specimens form Benkoelen and Palembang and from Mt. Ophir (Talaman) north of Padang, collected by Mr. E. Jacobson.

181. Arrenga melanura, Salvad.

Robinson and Kloss, p. 198.

2 ♂, ♀, Bandar Baroe, Deli, N. E. Sumatra, 24th—31st May 1917 [Nos. 418, 417, 430].

♂ imm., Brastagi, Simeloengan, N. E. Sumatra, 20th June 1917 [No. 501].

2 ♂, 2 ♀, Tengkeh, Simeloengan, N. E. Sumatra 24th—28th June 1918 [Nos. 1038, 1040-2].

Wing of adults, 127, 124, 128, 124, 125 mm.

182. Myiophoneus flavirostris dicrorhynchus, Salvad.

Robinson and Kloss, p. 199.

♀, Bandar Baroe, Deli, N. E. Sumatra, 21st May 1917 [No. 420].

Wing, 158; bill from gape, 43 mm.

183. Mesia laurinae, Salvad.

Robinson and Kloss, p. 203.

♂, Brastagi, Simeloengan, N. E. Sumatra, 19th June 1917 [No. 499].

Wing, 76 mm.

A very handsome bird markedly different in its crimson throat and breast from the allied *Mesia argentauris* of the Himalayas and Malayan Hills.

TURDIDAE.

184. **Geocichla citrina citrina** (Lath.).

Robinson, Journ. Fed. Malay States, VII, p. 179 (1917).

♂, Toentoengan, Deli, N. E. Sumatra, 7th January 1918 [No. 905].

Wing, ♂, 116 mm.

This appears to be a new record for the island of Sumatra, which the bird probably visits on migration only. It is not *G. c. rubecula* of Java which has been ascribed to Sumatra on very insufficient evidence.

185. **Henicurus ruficapillus,** Temm.

Hydrocichla ruficapilla, Sharpe, t.c. p. 319.

3 ♂, 2 ♀, Deli Toewa, Deli, N. E. Sumatra, 8th February —3rd April 1917 [Nos. 5, 122, 146, 198-9].

Wing, ♂, 90, 90, 88; ♀, 85, 86 mm.

186. **Henicurus velatus,** Temm.

Robinson and Kloss, p. 212.

♂, Bandar Baroe, Deli, N. E. Sumatra, 21st May 1917 [No. 408].

Wing, 81 mm.

Common in mountain streams throughout the island.

187. **Copsychus saularis musicus** (Raffles).

Robinson and Kloss, p. 215; Hartert, p. 213.

3 ♀, Polonia, Deli, N. E. Sumatra, 9th November 1916—25 March 1917 [Nos. 178, 641, —].

♀, No exact locality.

2 ♂, ♂ imm., ♀, No exact locality. 22nd April 1916—7th August 1916.

Wing, ♂, 96, 103; ♀, 99, 95, 94, 97.

These are true *C. s. musicus* agreeing with topotypes of the subspecies from near Bencoolen.

188. **Kittacincla macrurus macrurus** (Gm.).

Robinson and Kloss, p. 216.

Cittocincla macroura, Hartert, p. 213.

3 ♂, ♀, Deli Toewa, Deli, N. E. Sumatra, 8th March—6th April 1917 [Nos. 123, 137, 205, 206].

♂, Mabar, Deli, N. E. Sumatra, 22nd March 1917 [No. 176].

♀, Tandjong Morawa, Serdang, N. E. Sumatra, 3rd March 1917 [No. 116].

2 ♂, Toentoengan, Deli, N. E. Sumatra, 23rd November 1917—7th January 1918 [Nos. 821, 910].

Wing, ♂, 93, 95, 93, 97, 95; ♀, 88, 87 mm.

Females are rather darker than the same sex from Siam and the Malay Peninsula. The Insular birds if distinct, which is extremely doubtful, will be named *K. m. tricolor* (Vieill.).

SYLVIIDAE.

189. **Acrocephalus orientalis,** Temm. and Scheg.

4 ♂, 2 ♀, Polonia, Deli, N. E. Sumatra, 14th February—17th March 1917 [No. 15, 23, 25, 24, 152-3]

Wing, ♂, 80, 83, 82, 82; ♀, 78, 79.

A winter migrant also common in the Malay Peninsula during that season.

190. **Burnesia flaviventris** (Deless.).

Robinson and Kloss, p. 220.

3 ♂, Polonia, Deli, N. E. Sumatra, 16th May—15th July 1917 [Nos. 618, 694, —].

Wing, ♂., 46, 47, 48, mm.

191. **Cisticola cisticola** (Temm.).

Robinson and Kloss, p. 218; Hartert, p. 213.

♂, ♀, Polonia, Deli, N. E. Sumatra, 19th July 1916—14th June 1917 [Nos. 637, 661, 702].

♂, Toentoengan, Deli, N. E. Sumatra, 8th February 1918 [No. 779].

Wing, ♂, 46. 5, 49; ♀, 50 mm.

192. **Orthotomus ruficeps** (Less.).

Robinson and Kloss, p. 218.

? Kampong Amplas, Deli, N. E. Sumatra, 22nd July 1916.

Wing, 41 mm.

This bird agrees with one from Korinchi in having the tail blackish brown not chestnut, and the external aspect of the wings paler. The birds are presumably immature as is shown by the indeterminate border of the chestnut of the head. The determination is open to doubt.

193. **Orthotomus cineraceus,** Blyth.

Hartert, p. 213.

♀, Polonia, Deli, N. E. Sumatra 10th October 1917 [No. 555].

♂ ad., ♂ imm., Toentoengan, Deli, N. E. Sumatra, 14th January 1918—12th November 1917 [Nos. 915, 590].

♀, Tandjong Slamat, Langkat, N. E. Sumatra, 18th February 1918 [No. 1010].

Wing, ♂, 49, ♀, 48, 45 mm.

The male, presumably immature, has the undersurface, especially the belly, almost white and the subterminal dark bar on the tail very pronounced.

194. **Phylloscopus borealis** (Blas.).

Robinson and Kloss, p. 218.

? Deli Toewa, Deli, N. E. Sumatra, 30th March 1917 [No. 236].

Wing, 63 mm.

A winter visitor of which not many specimens seem to be on record from Sumatra.

195. Suya superciliaris albigularis, Hume.

Robinson and Kloss, p. 219.

2 ♀, Bandar Baroe, Deli, N. E. Sumatra, 21st May 1917—22nd January 1918 [Nos. 421, 946].

♀, Brastagi, Simeloengan, N. E. Sumatra, 21st June 1917 [No. 537].

Wing, ♀, 51, 48, 51, mm.

Originally described by Hume from Acheen this warbler seems common in elevated grass lands and open country throughout Sumatra.

196. Tephrodornis pelvica sordida, Stoliezka.

Robinson and Kloss, p. 222.

♂, 2 [♀]? ♂ imm., Deli Toewa, Deli, N. E. Sumatra, 1st April 1917 [Nos. 210, 211, —].

Wing, ♂, 97, 97, 97 mm.

This form is the species that has hitherto been known as *T. gularis* (Raffles) which turns out to be the species known as *T. virgatus* (Temm.) over which name it has priority.

197. Hemipus obscurus (Horsf.).

Robinson and Kloss, p. 222.

♂, No exact locality, 7th May 1916.

♂, Kampong Amplas, Deli, N. E. Sumatra, 22nd July 1916.

♂, ♀, Polonia, Deli, N. E. Sumatra, 9th June—10th August 1916 [Nos. 754, 771].

♂ ♀, Toentoengan, Deli, N. E. Sumatra, 30th December 1917—4th February 1918 [No. 968].

Wing, ♂, 62, 61, 63, 66; ♀, 65, 62 mm.

Not the slightest differences are discernible between specimens of this species from Java, Sumatra and the Malay Peninsula.

198. Lanius bentet (Horsf.).

Robinson and Kloss, p. 224.

7 ♂, 3 ♀, juv., Polonia, Deli, N. E. Sumatra, 9th November 1916—31st October 1917 [Nos. 28, 78, 187, 192, 556, 577, 635, 663, 681, 698, 725, 759].

♂, ♀, imm. No exact locality, 10th May—2nd September 1916.

♂, Tandjong Slamat, Langkat, Sumatra, 19th February 1918 [No. 1006].

Wing, ♂, 88, 91, 88, 87, 89, 88, 88, 90; ♀ 86, 89, 85 mm.

Apparently very common in Sumatra throughout the year; a rare and casual visitor to the Peninsula during the winter months.

This species varies much in colour according to the age of the plumage; freshly moulted birds have the flanks and rump rich rufous buff while worn birds hae them almost white. Young birds have the whole of the upper surface dull rufous buff the feathers edged with blackish and with no trace of the black frontal band. Beneath the flanks are pale fulvous the feathers with dark edgings.

199. Lanius tigrinus (Drap.).

Hartert, p. 208.

2 ♀ aest., 2 ♂ imm., 2 ♀, Toentoengan, Deli, N. E. Sumatra, 19th November 1917—1st January 1918 [Nos. 612, 830-1, 868, 853, 898].

♂ imm., Tandjong Morawa, Serdang, N. E. Sumatra, 27th February 1917 [No. 93].

Imm., Laboean, Deli, N. E. Sumatra, 24th February 1917 [No. 65].

2 aest., ♀, ♂ imm., Deli Toewa, Deli, N. E. Sumatra, 16th November 1916—6th April 1917 [Nos. 7, 192, 193, 723].

Wing, ♂, 79, 81, 80, 82; ♀, 81, 82, 81 mm.

A common species throughout the Indo-Malayan Region though full plumaged males with grey head and deep black eye-streak are always greatly in the minority.

200. Lanius cristatus superciliosus (Lath.).

3 ♂, 5 ♀, Polonia, Deli, N. E. Sumatra, 24th October 1916—26th February 1917 [Nos. 77, 75, 691, 715, 717, 723, 804].

Wing, ♂, 84, 82, 88; ♀, 83, 83, 84, 85 mm.

The shrikes of this group are most difficult birds to discriminate. Three races occur in the Malayan area viz., *L. c. cristatus,* Linn., a pale bird with no strong cinnamon on the flanks and no very strongly marked supercilium or pale frontal area; *L. c. superciliosus* a richer coloured bird usually with a pale frontal band, and *L. c. lucionensis* in which the back and rump is clay colour and the grey of the forehead extends over the crown. The present series presents intermediates and possibly all three forms are represented but we have thought it best to record all as *L. c. superciliosus* the type of which came from Batavia.

201. Parus cinereus malayorum, Rob. and Kloss.

Robinson and Kloss, p. 226.

♂, Brastagi, Simeloengan, N. E. Sumatra, 21st June 1917 [No. 540].

Wing, 64 mm.

Apparently common at considerable elevations in Sumatra as in Java. In the Malay Peninsula it is only found among the Mangroves and Casuarinas on the coast.

202. Poliositta azurea expectata (Hartert).

Robinson and Kloss, p. 228.

♀, Tengkeh, Simeloengan, N. E. Sumatra, 20th June 1917 [No. 526].

Wing, 75 mm.

A form very slightly differentiated from the typical Javan race. The Malayan and Sumatran birds are identical.

203. Corvus enca compilator, Richmond.

Robinson and Kloss, p. 229.

Corvus enca, subsp., Hartert, p. 215.

♀, Deli Toewa, Deli, N. E. Sumatra, 5th April 1917 [No. 214].

♂, Toentoengan, Deli, N. E. Sumatra, 7th March 1918 [No. 1030].

Wing, ♂, 318; ♀, 305 (worn) mm.

Distinguishable from the heavy-billed *C. macrorhynchus,* Wagl., which probably also occurs in Deli, by the poorly developed, almost absent, throat hackles and by the greyish colour of the undersurface.

204. Dendrocitta occipitalis (S. Muell.).

Robinson and Kloss, p. 230; Hartert, p. 215.

3 ♂, 2 ♀ imm., Bandar Baroe, Deli, N. E. Sumatra, 12th April—10th June 1917 [Nos. 238-9, 270, 473].

Brastagi, Simeloengan, Deli, N. E. Sumatra, 21st June 1917 [No. 531].

♂, Tengkeh, Simeloengan, N. E. Sumatra, 29th June 1918 [No. 1047].

No exact locality.

Wing, ♂, 141, 138, 138, 135, 138; ♀, 143, 143, 134 mm.

This series in no way differs from specimens from the west coast. Young birds have the undersurface very much lighter and the feathers of the back and rump, especially the latter, tipped with fulvous buff.

205. Cissa chinensis minor (Cab.).

Robinson and Kloss, p. 231.

♂ ♀, Bandar Baroe, Deli, N. E. Sumatra, 10th June 1917 [Nos. 487, 488].

♀, Tengkeh, Simeloengan, N. E. Sumatra, 17th June 1917 [No. 491].

♀, Brastagi, Simeloengan, N. E. Sumatra, 19th June 1917 [No. 492].

Wing, ♂, 130; ♀, 126, 127, 137 mm.

Extremely closely allied to the forms from the Malay Peninsula, (*C. c. robinsoni,* Grant) and from Tenasserim (*C. c. chinensis*). Much more distantly related to that from Java (*C. thalassina*).

206. **Dicrurus annectens** (Hodgs.).

♀ imm., Deli Toewa, Deli, N. E. Sumatra, 8th March 1917 [No. 126].

2 ♂, 2 ♀, Tandjong Morawa, Serdang, N. E. Sumatra, 27th February—16th October 1917 [Nos. 92, 106, 559].

2 ♀, Toentoengan, Deli, N. E. Sumatra, 13th November 1917 [No. 591, 874].

Wing, ♂, 137; ♀, 140, 137, 138, 138, 136 mm.

As is the case with most Malayan birds none of these specimens are fully adult as is indicated by the white tips to the feathers of the breast, abdomen and under tail-coverts. The bird is largely migratory in Sumatra and the Malay Peninsula and is very common in the winter months on the small islands of the Straits of Malacca. For the present we have not used a subspecific name for the Sumatran and Malayan bird as the material available is not really sufficient to discriminate the various races if any such really exist, which is a very open question.

207. **Dicruropsis sumatranus** (Wardl. Rams.).

Robinson and Kloss, p. 232.

2 ♂, ♀, juv., Bandar Baroe, Deli, N. E. Sumatra, 18th—19th May 1917 [Nos. 390-393].

Wing, ♂, 151, 147; ♀, 143 mm.

Confined to the island of Sumatra.

208. **Dissemurus paradiseus platurus** (Vieill.).

Robinson and Kloss, p. 232.

Dissemurus platurus, Hartert, p. 210.

♂ ♀, Polonia, Deli, N. E. Sumatra, 1st—3rd November 1916 [Nos. 727, 785].

2 ♂, Toentoengan, Deli, N. E. Sumatra, 11th—22nd November 1917 [Nos. 581, 629].

♂, ♀, Deli Toewa, Deli, N. E. Sumatra, 1st November 1917 [Nos. 571-2].

♂, ♀, Tandjong Morawa, Serdang, N. E. Sumatra, 27th March—16th October 1917 [Nos. 182, 560].

♂, ♀. No exact locality, 24th February—26th April 1916.

Wing, ♂, 141, 143, 146, 145, 148, 141; ♀, 138, 140, 137, 145 mm.

These birds are fairly uniform, with small crests and not very large tail rackets: they agree with birds from the central and southern parts of the Malay Peninsula and are best placed under the above subspecific name originally applied to Javan birds.

209. Buchanga leucophaea batakensis, subsp. nov.

4 ♂, 2 ♀, Bandar Baroe, Deli, N. E. Sumatra, 10th—17th April 1917 [Nos. 244-5, 280-2, 930].

♂, ♀, Sibajak, Simeloengan, N. E. Sumatra, 18th June 1917 [Nos. 495, 497].

Wing, ♂, 127, 128, 126, 128, 126; ♀, 126, 125 mm.

These grey Drongos are amongst the most difficult of birds to discriminate, but the present form is distinguished from related races by having practically no black front band and grey lores not very clearly defined but still paler than the forehead and not bluish grey.

Buchanga leucogenys, Walden, from the North Malay Peninsula is much paler with a longer tail, and the greater part of the sides of the head white in adult birds.

Buchanga stigmatops, Sharpe, is a pale bird with shortish tail, a very clearly defined loral spot white and no black frontal band. It is found in Borneo.

Buchanga leucophaea, (Horsf.), is a darker bird with dark lores, and a distinct black frontal band. It is found in Java.

Other forms occur in Indo-China but cannot at present be dealt with.

Buchanga leucophaea phaedra, Reichnw., Wissensch. Ergebn. d. Deutsch Tiefsee. Exped. Bd. VII, p. 356 (1904), is closely related to *B. stigmatops* but has the white loral spot less developed.

Types of the sub-species ♂, ♀, Bandar Baroe, N. E. Sumatra, 10th October 1917 [Nos. 245, 281].

210. Chaptia aenea malayensis (A. Hay).

Chaptia malayensis, Hartert, p. 207.

♂, ♀, Deli Toewa, Deli, N. E. Sumatra, 6th April 1917 [No. 213].

Wing, ♀, 100 mm.

Apparently very small, a large series of males (curiously enough we have no females) from the Malay Peninsula measure 109-110 mm. with a much longer tail.

211. Bhringa remifer (Temm.).

Robinson and Kloss, p. 234.

♂, ♀, Bandar Baroe, Deli, N. E. Sumatra, 6th June 1917 [Nos. 452, 453].

♂, ♀, Tengkeh, Simeloengan, N. E. Sumatra, 20th June 1917 [Nos. 521, 522].

Wing, ♂, 128, 119; ♀, 126, 127 mm.

The Sumatran birds are probably strictly identical with the typical *Bh. remifer* from Java but out of the very large number of specimens available practically none have the outer rackets perfect so that it is at present impossible to arrive at any definite conclusions.

Himalayan birds belong to another race *Bh. r. tectirostris,* Hodges while S. Tenasserim and Malayan birds represent a third subspecies, *B. r. attenuata,* Robinson and Kloss (t. c. p. 235) *vide postea,* p. 61.

212. Oriolus cuentus consanguineus (Wardl. Rams.).

Robinson and Kloss, p. 236.

8 ♂ ad., 3 ♂ imm., 5 ♀ ad., Bandar Baroe, Deli, N. E. Sumatra, 12th April—10th June 1917, 20th—23rd January 1918 [Nos. 273-5, 292-7, 383, 384, 406, 489, 933-5].

Wing, ♂, 124, 131, 129, 130, 132, 131, 129, 132; ♀, 126, 128, 129, 128, 131 mm.

213. Oriolus maculatus (Vieill.).

Robinson and Kloss, p. 235; Hartert, p. 215.

2 ♂ imm., Toentoengan, Deli, N. E. Sumatra, 10th Nov.—12th December 1917 [Nos. 579, 608, 852].

2 ♂, 2 ♀, Polonia, Deli, N. E. Sumatra, 31st October 1916—28th October 1917 [Nos. 551, 782].

♂ ad., ♀ imm., Brastagi, Deli, N. E. Sumatra, 19th—21st June 1917 [Nos. 511-532].

♂. No exact locality, 23rd August 1916.

Wing, ♂, 138, 138, 140, 141, 139; ♀, 141, 133 mm.

Females appear to be distinguished from the males by the greenish olive tinge of the interscapulum and by having the two median tail feathers greenish olive and not glossy black as in the adult males. Immature birds of both sexes lack the clear black collar from lores to lores behind the head and have the breast striped.

214. Artamus leucogaster (Valenc.).

Robinson and Kloss, p. 237; Hartert, p. 207.

♀, Bandar Baroe, Deli, N. E. Sumatra, 9th June 1917 [No. 483].

♂, ♀ ? Polonia, Deli, N. E. Sumatra, 6th—19th November 1916 [Nos. 761, 762, —].

♂, Toentoengan, Deli, N. E. Sumatra, [No. 872].

No exact locality.

Wing, ♂, 133, 139; ♀, 136, 135 mm.

Very common all over Sumatra though the species has not yet been met with anywhere in the Malay Peninsula.

215. Gracula javana (Cuv.).

Hartert, p. 215.

♂, Sungei Boeloe, Serdang, N. E. Sumatra, 27th November 1916 [No. 696].

2 ♂, Deli Toewa, Deli, N. E. Sumatra, 11th March—3rd April 1917 [Nos. 143, 208].

♂, Tandjong Morawa, Deli, N. E. Sumatra, 29th June 1917 [No. 546].

♂, Polonia, Deli, N. E. Sumatra, 13th November 1916.

♂. No exact locality, 13th May 1916.

♂, Toentoengan, Deli, N. E. Sumatra, 1st January 1918 [No. 894].

Wing, ♂, 176, 184, 182, 179, 185, 174, 171 mm.

216. Aplonis panayensis strigata (Horsf.).

Robinson and Kloss, p. 238.

Calornis chalybea, auct. plur.; Hartert, p. 214.

3 ♂, 2 ♀, 2? Polonia, Deli, N. E. Sumatra, 18th November 1916—30th October 1917 [Nos. 569-70, 652, 704, 709, 764, 783].

2 ♂, ♀, Toentoengan, Deli, N. E. Sumatra, 11th November 1917—18th November 1917 [Nos. 582-3, 611].

4 ♂, ♂ imm. No exact locality, 22nd April 1916—25th May 1916.

Wing, ♂, 91, 92, 97, 91, 97, 96, 95, 97; ♀, 93, 94 mm.

Very constant in colour and in size, the wing dimensions given above according with those of Stresemann (Nov. Zool. XX, p. 376 (1913).

217. Sturnia sturnina (Pall.).

Hartert, p. 214.

♂, Boeloe, Serdang, N. E. Sumatra, 13th December 1916 [No. 711].

2 ♂, Tadjong Morawa, Serdang, N. E. Sumatra, 19th February 1917 [Nos. 34, 35].

3 ♂, 2 ♀ ? Polonia, Deli, N. E .Sumatra, 2nd January—12th February 1917 [Nos. 18, 19, 99, 101, 634, 647].

Wing, ♂, 103, 102, 105, 110, 106; ♀, 105, 103.

A winter visitor, usually met with in very large flocks.

218. Ploceus passerinus infortunatus, Hartert.

Robinson and Kloss, p. 239.

Ploceus atrigula, Hartert, p. 214.

4 ♂. No exact locality, 4th April—20th August 1916.

2 ♂ imm. 2 ♀,, Polonia, Deli N,. E. Sumatra, 11th June 1916—19th February 1917 [Nos. 40-2, 802].

Wing, ♂, 67, 67, 68, 69; ♀, 65, 68 mm.

Common in scrub and by the sides of swamps and streams where the large globular and flask-shaped nests are very conspicuous.

219. Munia oryzivora (Linn.).

Hartert, p. 214.

2 ♀, Tandjong Morawa, Serdang, N. E. Sumatra, 29th June 1917 [Nos. 549-550].

3 ♂, ♂ imm., ♀ imm., Polonia, Deli, N. E. Sumatra, 2nd November 1916—11th March 1917 [Nos. 157, 158, 756, 790-1, 794].

? Polonia, Deli, N. E. Sumatra, 15th July 1916.

Wing, ♂, 67, 68, 66; ♀, 66, 68, 63 mm.

Not impossibly introduced into Sumatra as it certainly has been into Singapore and the Malay Peninsula.

220. Munia acuticauda, Hodgs.

Robinson and Kloss, p. 240; Hartert, p. 214.

2 ♀, Polonia, Deli, N. E. Sumatra, 30th June 1916—24th January 1917 [Nos. 660, 671].

Wing, ♀, 48, 46 mm.

Always much rarer than the two succeeding species.

221. Munia maja, (Linn.).

Robinson and Kloss, p. 239; Hartert, p. 214.

2 ad. No exact locality.

2 imm. No exact locality, 28th July 1916.

1 imm. No exact locality, 15th July 1916.

2 ♂, ♀, ♀ imm., Polonia, Deli, N. E. Sumatra, 22nd July 1916—14th October 1917 [Nos. 16, 558, —, —].

Wing, ♂, 51, 52 mm.

222. Munia punctulata nisoria (Temm.).

Robinson and Kloss, p. 239; Hartert, p. 214.

5 ♂, ♀, ♂ imm., Polonia, Deli, N. E. Sumatra, 14th October 1916—11th February 1917 [Nos. 15, 17, 557, 565, —8].

2 ad. No exact locality.

Wing, ♂, 51, 50, 49, 49, 49; ♀, 50 mm.

223. Passer montana malaccensis, Dubois.

Hartert, Palaarkt. Faun. Vog., I, p. 161 (1904).

Passer montanus, Hartert, p. 214.

♂. No exact locality, 2nd September, 1916.

3 ♂, ? Polonia, Deli, N. E. Sumatra, 22nd October 1916 1st February 1917 [Nos. 769, 770, —, 805].

Wing, ♂, 62 (worn) 65, 66, 66 mm.

Dubois has separated the tropical race of the European Tree-Sparrow as being smaller and more richly coloured as is undoubtedly the case.* Whether the race should be united with that described by Stejneger from the Liu-Kiu Islands—*Passer montana saturatus* (Proc. U. S. Nat. Mus. VIII. p. 19 (1885) from a single specimen as Van Oort holds (Notes Leyden Mus. XXXII. pp. 165-6, 1910) we are unable to state.

224. Motacilla flava simillima, Hartert.

Hartert, Vog. Pallarkt Faun., I, p. 289 (1905).

2 ♂, ♀ 3? (all imm.), Polonia Deli, N. E. Sumatra, 3rd November 1916—5th February 1917 [Nos. 638, 638 bis., 644].

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* Faun. Vert Belg. Oiseaux, I. p. 573 (1885).

2 ♀, Toentoengan, Deli, N. E. Sumatra [Nos. 674, 737, 746].

Wing, ♂, 77, 81; ♀, 78, 76, 79. Tail, ♂, 75, 75; ♀, 73, 79, 72 mm.

This race can be separated from the succeeding by its shorter tail and by the uniform upper surface flushed with olive green, whereas in *M. b. melanope* the upper surface is greyish with the rump strongly tinged with yellowish olive clearly defined from the back and mantle.

225. Motacilla boarula melanope, Pall.

Hartert, Vog. Palaarkt, Faun., I, p. 300 (1905) ; Hartert, p. 214.

2 ♀, ? Polonia, Deli, N. E. Sumatra, 29th October 1916—20th October 1917 [Nos. 747-8, —].

Wing, ♀, 77, 78. Tail, 93, 94. mm.

The commonest wagtail in the Malay Peninsula where other species are exceedingly rare.

226. Dendronanthus indicus(Gm.).

Robinson and Kloss, p. 240.

Limonidromus indicus, (Gm.), Hartert, p. 214.

Deli Toewa, Deli, N. E. Sumatra, 8th March 1917 [No. 124].

Toentoengan, Deli, N. E. Sumatra, 18th November 1917 [No. 610].

Wing, ♂, 77, 75 mm.

A migratory bird found in Sumatra from September to March.

227. Anthus richardi malayensis, Eyton.

Robinson and Kloss, p. 241; Hartert, p. 214.

2 ♂, ♀, Polonia, Deli, N. E. Sumatra, 8th January—1st February 1917 [Nos. 605, 619, 645].

3 ♂, ♀, Toentoengan, Deli, N. E. Sumatra, 6th—24th December 1917, 16th May 1918 [Nos. 856-7, 882, 1034].

♂, ♀. No exact locality, 16th May—12th June 1916.

Wing, ♂, 81, 82, 79, 76, 78, 80; ♀, 75, 75, 75 mm.

Evidently common as in the Malay Peninsula.

NECTARINIIDAE.

228. Aethopyga temmincki(Muell. and Schleg.).

Robinson and Kloss, p. 242.

♂, Bandar Baroe, Deli, N. E. Sumatra, 8th June 1917 [No. 475].

♂, Brastagi, Simeloengan, N. E. Sumatra, 18th June 1917 [No. 518].

♂, Brastagi, Simeloengan, N. E. Sumatra, 29th June 1918 [No. 1044].

Wing, ♂, 57, 55, 58 mm.

The mountain representative of *A. s. siparaja* though not a sub-species thereof. Common in Sumatra between 3-5000 feet and also in many localities in the Malay Peninsula at similar elevations.

229. Aethopyga siparaja siparaja (Raffles).

Robinson and Kloss, p. 241; Hartert, p. 209.

♂, Deli Toewa, Deli, N. E. Sumatra, 16th November 1916 [No. 809].

2 ♂, ♀, Toentoengan, Deli, N. E. Sumatra, 14th—22nd November 1917, 15th January 1918 [Nos. 596, 631, 914].

5 ♂, Polonia, Deli, N. E. Sumatra, 16th April 1916—10th November 1916 [Nos. 665, 693, 685, 686, 688].

♀. No exact locality.

Wing, ♂, 51, 49, 51, 50, 47 (worn), 51, 50, 50 mm.; ♀, 46, 43 mm.

Usually found in open country near the sea though it was not uncommon in the lower Korinchi valley at 2500-3000 ft.

230. Cyrtostomus ornata ornata (Less.).

Robinson and Kloss, p. 242.

3 ♂, Brastagi, Simeloengan, N. E. Sumatra, 18th—20th June [Nos. 496, 498, —].

3 ♂ ad., ♂ imm., ♀, Polonia, Deli, N. E. Sumatra, 16th June 1916—22nd February 1917 [Nos. 50, 639, 659, 806, —].

Wing, ♂, 52, 52, 53, 52, 50, 53; ♀, 50 mm.

There is much variation, which does not appear to depend on age, in the extent of the metallic violaceous cap on the head of the male of this species. In Malay Peninsula birds it is always small in extent but in some from Sumatra it extends well behind the level of the eyes.

231. Anthreptes malaccensis malaccensis (Scop.).

Robinson and Kloss, p. 243.

Anthreptes malaccensis, Hartert, p. 208.

♂, ♂ imm., Tandjong Morawa, Serdang, N. E. Sumatra, 29th June—16th October, 1917 [Nos. 548, 562].

4 ♂, 3 ♂ imm., 2 ♀, Polonia, Deli, N. E. Sumatra, 28th August 1916—7th October 1917 [Nos. 552-4, 695, 677, 736, 774, 814].

♀, Toentoengan, Deli, N. E. Sumatra, 11th February 1918 [No. 991].

♀. No exact locality.

Wing, ♂, 66, 63, 64, 66, 63; ♀, 61, 63, 60 mm.

The yellow of the undersurface, especially in females, is rather brighter than in the majority of the Malay Peninsula birds. Common wherever there are coconut groves.

232. Chalcoparia singalensis singalensis (Gm.).

Robinson and Kloss, p. 244; Hartert, p. 209.

♀, Tandjong Morawa, Serdang, N. E. Sumatra, 12th May 1917 [No. 363].

2 ♂, ♀, Polonia, Deli, N. E. Sumatra, 27th May—23rd June 1916 [Nos. 682, 816, —].

Wing, ♂, 52.5, 54; ♀, 52, 50 mm.

Agreeing in colour with typical birds from the south of the Peninsula, but duller than those from the North and from Siam which are subspecifically distinct.

233. Arachnothera flavigaster (Eyton).

Robinson and Kloss, p. 245.

♀, Bandar Baroe, Deli, N. E. Sumatra, 18th April 1917 [No. 288].

Wing, ♀, 93 mm.

Rather smaller than most Malayan females.

234. Arachnothera longirostra longirostra (Lath.).

Robinson and Kloss, p. 244; Hartert, p. 210.

Arachnothera longirostra melanchima, Oberholser Smithsonian Misc. Coll. Vol. 60, No. 7, p. 19 (1912).

♀, Bandar Baroe, Deli, N. E. Sumatra, 29th May 1917 [No. 439].

3 ♂, Deli Toewa, Deli, N. E. Sumatra, 20th July 1916—31st March 1917 [Nos. 817, 200-1].

2 ♂, 2 ♀, Toentoengan, Deli, N. E. Sumatra, 8th—30th December 1917, 1st—11th February 1918 [Nos. 862, 869, 890, 964, 990].

Wing, ♂, 63, 65, 70, 68, 63, 66; ♀, 60, 61, 62 mm.

A careful re-examination of this series and seven others from Sumatra and over twenty from the Malay Peninsula shows that no separation of the Sumatran bird is possible.

235. Arachnothera affinis modesta (Eyton).

Hartert, Nov. Zool. IX, p. 574 (1902).

♂ ? Tandjong Morawa, Deli, N. E. Sumatra, 23rd April 1917 [No. 312].

♂, ♀ imm., Deli Toewa, Deli, N. E. Sumatra, 10th March—2nd May 1917 [Nos. 128, 350].

Toentoengan, Deli, N. E. Sumatra, 29th December 1917 [Nos. 886, 887].

Wing, ♂, 83; ♀, 75, 73 mm.

These specimens seem slightly smaller than the Malayan specimens but the series available is not sufficiently large to decide if the Sumatran bird is subspecifically distinct. If so it will have to be known as *A. a. concolor,* Schlegel.

236. **Arachnothera chrysogenys chrysogenys** (Temm.).

Robinson and Kloss, p. 245.

Arachnothera chrysogenys copha, Oberholser, tom. cit. p. 20.

♀, Toentoengan, Deli, N. E. Sumatra, 23rd November 1917 [No. 822].

Wing, 80.5 mm.

Quite inseparable from West Sumatra and Malay Peninsula birds.

DICAEIDAE.

237. **Dicaeum sumatranum,** Cab.

Robinson and Kloss, p. 247; Hartert, p. 210.

2 ♂, ♀ imm., Polonia, Deli, N. E. Sumatra, 25th August —10th November 1916 [Nos. 815, 668, 684, 687].

♂, Toentoengan, Deli, N. E. Sumatra, 12th February 1918 [No. 992].

Wing, ♂, 42, 45, 43; ♀, 42 mm.

Probably a local race of *D. cruentatum.*

238. **Dicaeum trigonostigma** (Scop.).

Hartert, p. 210.

♂, Polonia, Deli, N. E. Sumatra, 15th November 1916 [No. 700].

2 ♂, Toentoengan, Deli, N. E. Sumatra, 19th December 1917—11th February 1918 [Nos. 867, 988].

Wing, ♂, 48, 48, 48 mm.

239. **Dicaeum minullum olivaceum** (Wald.).

Dicaeum inornatum, Hodgs.; Sharpe, Cat. Birds Brit. Mus. X, p. 45 (1885).

Dicaeum olivaceum, Hartert, Nov. Zool. IX, p. 575 (1902).

1 ♂, 2 ♀, Brastagi, Simeloengan, N. E. Sumatra, 19th June 1917 [Nos. 513, 514].

Wing, ♂, 43; ♀, 42, 43 mm.

We can detect no differences between these birds and three from various parts of the Malay Peninsula. The type came from Taunghoo in Lower Burma.

240. **Dicaeum beccarii,** Robinson and Kloss.

Dicaeum beccarii, Robinson and Kloss, t. c. p. 247, pl. Journ. Straits Branch Roy. Asiatic Soc. No. 73 p. VII., fig.. 1, Journ. Straits Branch Roy. Asiatic Soc. No. 73 p. 278 (1916).

Dicaeum vanheysti, Robinson and Kloss, Journ. Fed. Mal. States Mus. VII, p. 239 (1918).

1 ♂ ad., Laoe Goembah, near Brastagi, Simeloengan, N. E. Sumatra, 30th June 1918 [No. 1043].

1 ♂ vix. ad., 1 ♂ imm., 1 ♀ ad., Brastagi, 19th June 1917 [Nos. 517, 516, 512].

The last three specimens were unfortunately described by us as distinct under the name *Diceum vanheysti.* The advent of another specimen which is perfectly identical with the type of *D. beccarii,* convinces us that the later named birds merely represent a juvenal stage.

241. Prionochilus ignicapillus (Eyton).

♂, Deli Toewa, Deli, N. E. Sumatra, 5th May 1917 [No. 344].

Wing, ♂, 54 mm.

ZOSTEROPIDAE.

242. Zosterops atricapilla, Salvad.

Robinson and Kloss, p. 250.

2 ♂, Laoe Goembah near Brastagi, Simeloengan, N. E. Sumatra, 1390 metres, 30th June 1918 [Nos. 1050, 1051].

Wing, 54, 54 mm.

These birds resemble specimens from Korinchi and we have already given our reasons for regarding *Z. clara,* Sharpe, of Kinabalu as distinct from them.

ADDENDA.

155. Pyenonotus aurigaster (Vieill).

antea, p. 40.

We stated that this bird was new to Sumatra. In this we were incorrect as we find that a specimen collected by Martin in 1894 from an unspecified locality has been recorded by Parrot (Abhandl. der Konigl. Aayer. Akad. der Wissensch. II. Kl. XXIV, Bd. 1. p. 239 (1907). This author noted certain apparent differences between this specimen and descriptions and other specimens from West Java and gave it the provisional name of *Pycnonotus aurigaster martini.*

Comparison of Mr. Van Heyst's two skins with eleven freshly collected specimens from East and West Java show no difference whatever between the birds from the two islands either in size or colour.

211. Bhringa remifer (Temm.).

antea, p. 54.

Our name *Bhringa remifer attenuata* for the Malayan form of this Drongo has been antedated by Mr. Stuart Baker who has described birds from Telom, Perak—Pahang boundary, collected by ourselves, as *Bhringa remifer peracensis* (Bull. Brit. Orn. Club XXXIX, p. 18 (November 30th 1918).

Some More Malay Words.

By R. O. Winstedt.

I venture to suggest Sanskrit derivations for—

Malini, in the name *Wan Malini* in the *Sĕjarah Mĕlayu*, the name of one of the daughters of *Dĕmang Lebar Daun. Malini* (Skt.) = 'garlanded.'

Siamang 'the black long-armed Gibbon, *Symphalangus syndactylus.*' Dutch dictionaries throw no light on the word. This ape occurs only in the Malay Peninsula and Sumatra, but must have struck the attention of strangers. May it not have acquired a Skt. name in the days of Hindu predominance? *Syāmā* = 'black,' and *syāmānga* 'black-bodied.'

English dictionaries have not made it clear that in the name *ular chintamani* 'a snake which brings success in love.' *chintamani* = the 'wishgem,' the Hindu 'philosopher's stone,' said to have belonged to Brahma, who is himself sometimes called by the name.

Kedah is sometimes called *Zamīn Turan.* In Persian *Zamīn* = 'country' and *Toran* 'Tartary' or 'Turkestan'. Probably the name is due to wilful or unintelligent identification of Kedah with some place mentioned in an *Hikayat.*

Similarly Perak is called *Kustan Zorīan.* Possibly *Zorīan* is a corruption of the word *Zuzan*, an ancient city in Khuzistan. But anyhow the name *Kustan Zorīan* is likely to be due to some 'romantic' identification.

Mĕnyĕroka 'to open up a country, making rice-fields." N.S.

mĕnchĕlaga:—'*orang mĕnchĕlaga*' = 'person next in succession to an office, heir (*bakal*).'

These two are Negri Sembilan words, the first in common use; the second found in Ulu Muar.

Mĕndiang 'become a spirit,' a Selangor word said to have a Sumatran origin.

Lĕnggara, kĕlĕnggara 'to cherish, tend.' "*Akan Raja Fatimah tiada-lah kĕlĕnggarakan anakanda baginda Raja Abdu'l-Jalil itu lagi*" *Sĕjarah Mĕlayu* (Rom. ed.), Vol. II, p. 260.

ĕndul (cf. Khassi *doï-doï*) 'a swing support, a hammock, cradle' = Skt. *hindola* 'a swing, a swinging cradle or hammock." ("'Le *handoul* qui es sembable à une litière, soutenu sur les épaules"—*Kitab Ajaib a'l-Hind,* 1013 A.D.).

Jour. Straits Branch R. A. Soc., No. 80, 1919.

andor 'a litter, a machine with four arms in which images or reliques of the saints are borne in processions.' This word is evidently from Skt. *hindola* in the form *handul,* but it is hard to say if Portuguese borrowed *andor* from Malay or the contrary.

(*redi* 'a sort of hammock-litter':—Wilkinson. P. della Valle (1614-1626) describes three kinds of shoulder-borne vehicles in use at Goa (1) *reti* or *nets,* which were evidently the simple *hammock,* (2) *andor* and (3) the *palankin.* I have not discovered from what language *redi* is derived).

bĕrahi 'passion, love'—Skt. *virahi* (cf. Khassi *brái*).

bahara 'a weight = 3 pikul'—Skt. *bhara* 'a load.'

mas 'gold': $\frac{1}{16}$th of a tahil'—? Skt. *masha* 'a bean, a particular weight of gold.'

mĕngkona 'tuskless, of an elephant'—Skt. *matkuna* 'a bug, a flea, a beardless man, a tuskless elephant.' Hind. *makhna.*

sĕnggirek, rusa sĕnggirek 'unicorn." May not this be a corruption of Hind. *singhara,* Skt. *sringa* 'a horn?'

bangsal 'cooly lines, shed.' A very early Anglo-Indian word, suggested by Yule and Burnell to be a corruption of one of the following:—

(*a*) Beng. *bankasala* from Skt. *banik* 'trade' and *sala* 'a hall.'

(*b*) Skt. *bhandasala,* Malayalim *pandisala* 'a storehouse or magazine."

In Sea Hindustani *bansar* and *bangsal* = 'store room.'

baldi 'a horse-bucket,' 'metal bucket or foot-bath.' Wilkinson gives this as Hindustani, but the Hind. form is *balti* and borrowed from the Portuguese *balde.*

sĕrambi 'a closed verandah.'—Malayalim *srambi* 'a gate-house with a room over the gate, a chamber raised on four posts.'

chukai 'import customs dues'—Hind. *chauki* 'a toll-station, lock-up (cf. our 'choky'), dues levied.' *Chauki* is said to be connected with Skt. *chator* 'four' (in Malay = 'chess') and if so, may explain the Malay game *chuki* 'a kind of draughts.'

chunam 'prepared lime' used in the betel-quid. Skt. *churna* 'powder': Hind. *chuna*: Malayalim *chunnamba. Chunam* is the form of the old English "trade" name, common in India.

chita 'chintz.' Wilkinson derives from the Hindustani, but the forms are '*chita* Port., Mahr. *chit,* Hind. *chint,*' all, it is suggested by Yule and Burnell, derived from Skr. *chitra* 'variegated, speckled.' Like *baldi,* this word would seem to have reached the Malays through the Portuguese.

kĕndi ‘a water-kettle’—Malayalim *kindi,* Telugu *gindi,* Tamil *kinni.* In Malabar, it is a ‘vessel without a handle, used to drink from.’

misru ‘shot with gold, of cloth’—Wilkinson. “Mushrues” are an old trade fabric. Hobson-Jobson explains—“Pers. *mashrū* ‘lawful’: it is usually applied to a kind of silk or satin with a cotton back. ‘Pure silk is not allowed to men’ (Yusof Ali, *A Monograph on Silk Fabrics produced in the North-Western Provinces and Oudh,* 1900). ‘All *Mushroos* wash well, especially the finer kinds, used for bodices, petticoats and trousers of both sexes’ (Forbes Watson, *The Textile Manufactures and the Costumes of the People of India, London,* 1866).”

kasi ‘to give.’ This word does not occur in Malay literature and has found its way into colloquial Malay apparently from Singapore. It has never, so far as I am aware, been explained. With diffidence, I venture to suggest it may be derived from one of the forms of ‘cash’ (Skt. *karsha,* Tam. *kasu,* Singalese *kasi,* Portuguese *caixa*)—“a name applied to sundry coins of low value in several parts of India.” In 1598 Linschoten found copper *caixa* current in Sunda; and in 1727 Hamilton found leaden money called *Cash* current at Acheen. But the use of the word *kasi* ‘to give’ would seem to be of much later date, or probably it would have been accepted in literature.

Tha Fern-Allies and Characeae of the Malay Peninsula.

By H. N. Ridley, C.M.G., F.R.S.

The Fern-allies are taken to mean all the vascular Cryptogams exclusive of the true ferns and thus include the *Lycopodiaceae, Selaginellaceae* and *Rhizocarpeae.*

The only other group of existing Fern-allies, *Equisetaceae,* is not represented in the Malay Peninsula, though the common tropical Asiatic species, *Equisetum debile,* Roxb., may be expected to turn up in the mountains as it occurs in all the countries surrounding our area.

The most important works consulted for this paper are Spring's Monographe de la famille des Lycopodiacées 1842-1849, Baker's Fern-allies, published in 1887, and Van Rosenburgh's Malayan Fern-Allies dated 1915. In the Kew Herbarium, British Museum and Linnean Society's collections, I have seen all the types of Linnaeus, Spring, Baker, Hooker and Hieronymus which relate to our country, the only exceptions being one or two types of Spring's collected in Penang by Gaudichaud. Col. Beddome was identifying my specimens at Kew at the time of his death, and had nearly finished them.

Distribution. As all these plants except the *Rhizocarpeae* possess dust-like spores like the Ferns, it would appear at first probable that most species would have a world-wide distribution or at least there would be a very limited number of endemic species, owing to the long distances to which such spores can be borne on the wind, as also to the great antiquity of the group. In the *Lycopodiaceae* we have two species of *Psilotum* and one *Lycopodium* of very extended range. The two *Psilotums* range over all tropical countries and as far as Florida and New Zealand. *P. triquetrum* being the commonest. It grows on trees, especially Mangroves, rocks, walls, etc., very readily establishing itself. Though at least ten species have been made out of it, it really varies very little, the forms made into species by Karl Muller being merely states due to its habitat. *P. complanatum* seems more of an island plant and to be absent from the Peninsula of India and from Africa. It is generally to be found on Mangrove trees.

Lycopodium cernuum extends all over the tropical regions and into Japan, the Azores, New Zealand and St. Paul's island. It frequents rather dry spots on the edges of woods and in open country, and especially poor soil. It used to come up persistently in some of the grass plots in the Singapore Botanic Gardens where the soil was exceptionally poor. It frequented indeed much the same kind of country as does the bracken (*Pteris aquilina*) though its distribution is not so wide. It is quite absent from our dense wet forests and from very wet ground, but it is often to be found on banks of roads through the forests up to 2,000 or more feet altitude. Here it becomes a slender, weak plant with fine leaves. Like the widely dispersed bracken it varies really very little except where local circumstances are abnormal to it. In dry xerophytic spots it becomes more stout with stiff incurved leaves, var. *curvatum* and on wet mountains long and slender with fine spreading leaves, var. *salakense.* Karl Muller has however, made some species out of these habitat forms.

Of the other species of *Lycopodium* we have one which may be called Palaearctic viz., *L. complanatum,* our form however is very different in habits from the Arctic type.

The rest run thus:—

Tropical Asia and Polynesia to America	2
India to Polynesia	1
Africa to Polynesia	3
Malay isles only	3

No species, is endemic. The terrestrial species are more widely distributed than the epiphytic ones as the area where epiphytic plants can grow is less extensive than the non-epiphytic area.

The *Selaginellas* are none of them epiphytic; they inhabit shady, wet forest. Outside our area there are a certain number which are adapted for existence in dry, open regions, but most of ours are to be found in the forests on the ground or on rocks; one species *S. Ridleyi* grows on rocks in streams under water or at least is usually covered by water. Thirty-two species occur, of these we have:—

Endemic, 21 species, India only, 3, Indo-Malaya, 4,
Malay isles only, 2, All tropics except Africa, 1.

It is quite possible that further collecting may show that some of the endemics occur also in Borneo and Sumatra, but I cannot find specimens or reliable records of any of those classed as endemics here in the Kew or British Museum herbaria. The most widely distributed species is *S. flabellata,* originally described from South America. The Asiatic form hardly differs from that of S. America. The little *S. Belangeri* appear generally to grow in rather dry, open spots, and is possibly an introduction from India, where it appears to be common.

The *Rhizocarpeae* call for few remarks, being aquatics, there are few suitable localities for these in the Malay Peninsula. The remarkable *Salvinia cucullata,* abundant in the ponds in India and in West Australia has recently been met with in Setul. *Marsilea erosa,* an Indo-Malayan species, occurs in rice-fields in the plain country, and *Azolla pinnata* is an introduction which rapidly spreads wherever it can. It was perhaps introduced by natives from Java. The Chinese constantly cultivate *Pistia stratiotes* for pig food, and carry it about as they shift their quarters. *Azolla* a duckweed-like plant is easily carried about with it and grows covering their pig-food ponds with great rapidity. It may also be dispersed by water fowl, adhering to their feathers.

I. LYCOPODIACEAE.

Epiphytic or terrestrial plants. Rhizome when present creeping. Stems simple or dichotomously branched, covered with or with few scattered, small ovate or linear leaves entire or rarely serrate, sessile, 1-nerved, multifarious (rarely dimorphic and distichous as in *Selaginella*). Sporangia solitary in the axils of ordinary leaves all down the stem or in terminal spikes in the axils of modified leaves (bracts), uniform, compressed or turbinate 1-2-celled. Spores uniform, globose, granulate. Genera 4. Species about 100 in whole world.

Stems densely leafy. Sporangia 1-celled reniform	1 *Lycopodium.*
Stems with distant minute leaves. Sporange 3-celled, 3 lobed	2 *Psilotum.*

1. Lycopodium, L.

Epiphytic or terrestrial, often much branched, leafy throughout. Sporangia usually in terminal spikes more rarely in the axils of stem, leaves reniform 1-celled, dehiscing across the top. Spores with 3 lines radiating from the top.

Species over 90.

*Sporangia in the axills of leaves all down the stem. Terrestrial, leaves serrate	1 *L. serratum.*
**Sporangia in indistinct terminal spikes, the bracts differing slightly from leaves. Long epiphytes. Leaves small, stiff, appressed	2 *L. Dalhousianum.*
Leaves thin, spreading, 4 in. long ..	3 *L. squarrosum.*
***Spikes distinct, slender. Bracts different from leaves. Spikes several, long, slender. Epiphytic. Leaves elliptic almost covering the stem ..	4 *L. nummularifolium.*
Leaves spreading, stiff, ovate, lanceolate, acute, subdistichous. Leaves lanceolate. Bracts blunt ovate ..	5 *L. phlegmaria.*
Leaves narrow, lanceolate. Bracts ovate acute	6 *L. coralium.*
Leaves short, stiff, ovate, acute. Spikes very slender. Bracts ellipsoid, obtuse, shorter than the Sporanges ..	7 *L. filiforme.*
Leaves stiff, lanceolate, acuminate, appressed quaquaversal .5 in. long ..	8 *L. phyllanthum.*
****Terrestrial. Spikes solitary at ends of branches, erect plant. Leaves small, narrow	9 *L. cernuum.*
Spikes numerous at ends, cylindric. Much branched, climber. Leaves very small	10 *L. casuarinoides.*

Trailing plant. Leaves small, adpressed and adnate to stem at base .. 11 *L. complanatum.*
Creeping plant with simple erect stems with one terminal cylindric spike .. 12 *L. carolinianum.*

1. L. serratum, Thunb. Fl. Jap. 341 t. 38, Hook & Grev. Ic. t. 37. Baker, Handbook to Fern-Allies, p. 12.

Terrestrial or epiphytic, about 8 in. to 12 in. tall, leafy to the base, branched above. Leaves lanceolate .5- 1 in. long .05- 1 in. wide, acute, cuspidate, serrate, midrib prominent. Sporanges axillary all down the stem, except at base, .1 in. across.

In woods, not common. PAHANG, Gunong Tahan (Ridley 15962); Telom (Ridley 15961). MALACCA (Griffith) var. *alpestre.*

Distrib. Tropical Asia, Polynesia, America.

The typical form with broad leaves is var. *javanicum,* Makino; with narrow leaves, *alpestre.*

2. L. urostachyum, Wall. Cat. 117. *L. laxum,* Spring. Mon. I. p. 60.

Pendulous epiphyte with long rather slender branches 18-24 in. long, branches few. Leaves appressed to stem, lanceolate acute, thick, stiff. .25 in. long, in several rows. Fruiting spikes 1-2 terminal on each branch, rather slender; the bracts short, ovate, acute, stiff, keeled .1 in. or less. Sporanges rather large.

SINGAPORE (Schomburgh) (Wallich 117), MALACCA (Cuming). PERAK, Gambir Batu (Ridley 2412); Larut (Kunstler) PENANG HILL (Maingay).

Distrib. S. India, Malay isles, Polynesia.

3. L. Dalhousieanum, Spring Mon. ii. 25, Bak. Fern-Allies, p. 18.

Pendulous epiphyte 4-12 ft. long, glaucous with few branches, stout, nearly 1 in. through. Leaves ascending, lanceolate acuminate, firm .75-1 in. long, midrib distinct. Sporanges in 1 or 2 simple spikes 6-10 in. long, rather small bracts, ovate, acute .12 in. long.

SINGAPORE, Sungei Sumbawang, Chanchu-Kang; PAHANG on trees overhanging Tahan river. MALACCA (Hervey), PENANG HILL (Lady Dalhousie, Norris, etc.)

Distrib. Borneo.

4. L. squarrosum, Forst. Prod. No. 479. Bak. Fern-Allies, p. 18.

Epiphytic base erect then decurved, about 12-24 in. long, 2 or 3 times forked, stout, densely covered with lanceolate linear acuminate leaves spreading .3-.75 in. long, very narrow. Spikes solitary, terminal, thick forked, above 5 in. long, the branches 2 in. bracts subulate from a broader base .1 in. long. Sporangia rather large.

Common on trees in forests, Mangroves, etc.

SINGAPORE, Pasir Panjang; PAHANG, Telom. PERAK, Selama (Kunstler); Gunong Pondok (Murton).

Distrib. Tropical Asia, Africa and Polynesia.

5. **L. nummularifolium,** Bl. Enum. ii. 263. Hook. & Greville, Ic. t. 1212.

Epiphyte. Stems slender 1-2 ft. long 3- 4 times widely forked, covered with appressed elliptic, rounded leaves, flat .25 in. long. Spikes very slender with 2-4 branches 2-12 in. long. Bracts ovate acuminate, hardly longer than the sporangia.

Common on forest trees.

SINGAPORE, Chan Chu Kang. JOHOR, Tempayan river (Ridley 13285). PAHANG, Tahan River (Ridley 2397), Gunong Tahan (Robinson 5541). NEGRI SEMBILAN, Bukit Sulu (Cantley). SELANGOR, Bukit Kutu (Ridley 7814). PERAK, Goping (Kunstler) Temengoh; Taiping Hills (Ridley). PENANG, West Hill; Pulau Butong (Lady Dalhousie and all collectors).

Distrib. Malay Isles to New Hebrides.

6. **L. Phlegmaria,** Linn. Sp. Pl. ed. ii. 1564. Bak. Fern-Allies, 22.

Epiphyte pendulous 6-24 in. long, 2-4 times branched. Leaves close spreading, stiff, ovate, acute, base round or cordate; midrib distinct, .5-.75 in. long. Spikes 2-6 in. long, slender, 3-5 on each of the two short terminal branches, often forked again above. Bracts as short or shorter than the sporangia, ovate, blunt, tip round or subacute. Sporangia ellipsoid.

Common on trees.

SINGAPORE (Wallich 133.3) Garden Jungle; Chanchu Kang (Ridley 2420). PAHANG, Telom. MALACCA, Cape Rachado (Wallich). PERAK, Taiping (Kunstler), Temengoh. PENANG, Penara Bukit (Curtis 3016).

Distrib. Old World Tropics.

7. **L. filiforme,** Roxb. Fl. Ind. ed. Clarke 741. Bak. Fern-Allies p. 22.

Epiphyte very slender 1-2 ft. long, several times forked from near base. Leaves spreading, ovate, base round, acute tip midrib prominent .25-.3 in. long. Spikes very slender 2-6 in. long 2 to about 6 on each branch. Bracts rather distant ovate subacute or round, hardly longer than the subglobose sporanges.

Mountains and low country.

SINGAPORE, Chan Chu Kang (Ridley 3420). JOHOR, Sednah (Ridley 13491). MALACCA (Hervey). SELANGOR, Batang Berjuntai (Ridley 7813). PERAK, Taiping Hills 3-4500 ft. (Kunstler); Gunong Inas 3600 ft. (Yapp); Sunkai

(Kunstler); Gunong Kerbau) 4000 ft. (Robinson). PENANG, (Wallich).

Distrib. Ganges Delta, and Malay Islands.

8. **L. coralium,** Spring Pl. Jungh. 273. Bak. Fern-Allies p. 22.

Stem pendulous, rather slender, forked from near base twice 12-18 in. long. Leaves close set lanceolate, acute, rather thin not distichous, midrib prominent .3-.5 in. long. Spikes slender, flexuous few-branched 2-4 in. long. Bracts ovate, acute, longer than the ellipsoid sporange. Rare.

MALACCA (Hervey).

Distrib. Malay Isles.

The thin lanceolate leaves are not distichous in the lower part of the stem, but quaquaversal.

9. **L. phyllanthum,** Hook. and Arn. Bot. Beech. 103. Bak. Fern-Allies p. 22.

Stem about 2-3 ft., densely covered with imbricating lanceolate, acuminate, rather narrow appressed .5-.75 in. long. quaquaversal stiff, edges incurved, midrib prominent. Spikes 3-9 in. long, 2-3 times branched, rather thick. Bracts ovate, acute, keeled, much longer than the short sporangia.

PROV. WELLESLEY (Bishop Hose). PERAK, Batu Tujoh, Taiping (Curtis). KEDAH PEAK (Ridley 5144).

Distrib. Madagascar, S. India, Borneo, Polynesia.

10. **L. cernuum.** L. sp. Pl. ed. ii. 1566. Bak. Fern-Allies p. 23.

Terrestrial 1-9 ft. long, much branched. Leaves crowded, linear subulate .12 in. long, midrib prominent. Spikes, cylindric cones pale yellow on the ends of the branches, solitary, .25 in. long. Bracts broad, ovate with a large cusp, ciliate.

Very common all over the peninsula in dry places banks and open country. Besides the common open country form, there is a thin flaccid weak form which grows on shady banks high up in Penang and Perak. Another very marked form is var. *curvatum* a woody stiff form with short branches and shorter leaves, on Gunong Tahan at 5500 ft.

Distrib. All warm countries to the Azores and New Zealand. Native name Rumput Selamah, Rumput Suruk-Suruk, Paku Tilam, Paku Mara. Often used for decorating ballrooms.

var. *salakense* is a long form with flaccid hooked leaves, Perak, Gunong Inas (Yapp).

11. **L. casuarinoides,** Spring Mon. i. 94; Bak. Fern-Allies p. 24.

Slender, very long climbing, much branched; branches pendulous, slender. Leaves very small, lanceolate, tip setaceous, sometimes spreading .1 in. mainly close appressed to the stem, oblong, minutely mucronate, terminal tufts pale thin linear acuminate. Spikes on special branchlets panicled cylindric 1-3 in. long. Bracts base broad, brown ovate with a thin transparent edge and point, denticulate.

Mountains, climbing on trees at 3000 to 6600 feet. Common.

MALACCA, Mt. Ophir (all collectors) (Ridley 9876). PAHANG. Telom. (Ridley 13986); Gunong Tahan (Robinson 5398). PERAK, Gunong Kerbau (Robinson); Gunong Bal (Aniff); Gunong Bubu (Wray). KEDAH PEAK (Ridley 5145).

Distrib. India, Malaya.

12. L. complanatum, L. Sp. ed. ii. 1567. var. *L. thuyoides.*

Trailing plant, much branched 5-6 ft., branches ascending, branchlets 2 in. long. Leaves dimorphic, those of lower plane with a long decurrent adnate base and short free lanceolate limb, of the upper plane linear, appressed to stem. Spikes cylindric, 1-2 in. long on a peduncle 5 in. long with distant lanceolate bracts .8 in. long, above twice forked or more with about 8 spikes. Bracts broad, ovate, cuspidate, hardly as long as the sporange.

Rare. PERAK, Taiping Hills in full sun (Long).

Distrib. North temperate zone and mountains of Tropics.

13. L. carolinianum, Linn. Sp. ed. ii. 1567.

Stem creeping on mud 2 inches or more, rooting below with lanceolate acuminate leaves .18 in. long., crowded on the upper part. Branches ascending 3 in. long, simple with scattered lanceolate, acuminate leaves. Spike 1 erect on the branch 2-3 in. long, rather stout with ovate, lanceolate long acuminate squarrose bracts. Sporanges small. Local.

PAHANG, Gunong Tahan at 550 ft. in muddy spots on the padang.

Distrib. America, Africa, Ceylon, China, Malay Isles and Tasmania.

II. Psilotum, Sw.

Epiphytic plants with short rhizome. Stems simple below copiously branched above. Leaves scattered, minute in two or three rows. Sporanges turbinate coriaceous 3-lobed, 3-celled splitting down the lobes solitary in axils of rudimentary leaves on the branches.

Species 2. Tropics to Japan and New Zealand.

Branches slender triquetrous	1 *P. triquetrum.*
Branches flat	2 *P. complanatum.*

1. P. triquetrum, Sw. Syn. Fil. 117. Bak. Fern-Allies p. 30.

Plant 6-18 in. tall, branches slender triquetrous green. Leaves ovate minute coriaceous. Bracts smaller. Sporangia .1 in. across much larger, yellow. Common on trees and rocks.

Singapore. Johor, Tana Kunto (Ridley 4342). Malacca. Abundant on the old chapel ruins; Bukit Bruang (Derry 1101). Dindings, Telok Sera, the slender form *capillaceum* (Ridley 7140).

Distrib. As of genus.

2. P. complanatum, Sw. Syn. Fil. 188, 4141. t. 4. fig. 5.

Plant 6 in. to two feet, much branched, branches long, flat .15 in. wide. Leaves very minute, tooth-like. Sporanges about as large as in *triquetrum* more distinctly trilobed. Less common, on Mangroves and other trees.

Singapore (Wallich) Kranji (Hullett); Sungei Morai (Ridley 6321). Johor, Scudai road at 4th mile; Panchur and Johor Lama (Ridley 10221) also Batu Pahat. Perak, Taiping Hills (Long).

Distrib. As of genus.

III. SELAGINELLACEAE.

Terrestrial herbs. The sporanges not enclosed in any outer wrapper, but in the axils of unaltered or modified leaves on a long or short stem, of two kinds, the microsporanges containing numerous minute dust-like microspores, genera existing two, *Selaginella* and *Isoetes.*

Distrib. The Whole World.

I. Selaginella.

Stems erect or creeping, branched. Leaves small usually membranous sessile, or subsessile, in 4 rows, dimorphous usually oblique, 2 rows of the lower plane larger more spreading oblong rhomboid or ovate, of the upper plane smaller about half as big, ovate or oblong, close, appressed to the stem and cuspidate usually keeled. Spikes on the ends of the branchlets usually square in section. In one group *Homostachyae.* All the bracts similar lanceolate acuminate, in the other *Heterostachyae* bracts dimorphic resupinate 2 rows being lanceolate acuminate or acute on the same plane as the small leaves, and 2 rows much smaller pale, usually ovate or elliptic cuspidate, on the plane of the larger leaves. Microsporanges in the upper part of the spike, Macrosporanges in the lower part, both splitting across the top.

Species upward of 400, ranging from arctic Europe to Australia and from North to South America. Abundant in the tropics.

§1. Homostachyae. Spikes with all the bracts similar.

* Small prostrate creeping plants. Little or not branched, leaves close set ciliate .. .. 1 *Ridleyi.*
Little or not branched, leaves close set not ciliate 2 *Curtisii.*
Branches numerous .5 in. long leaves not touching. Upper plane leaves oblong not ciliate. Lower plane ovate, glabrous .. .. 3 *selangorensis.*

Lower plane, oblong, glabrous .. .. .. 4 *calcarea.*

Lower plane ovate strigose .. .. .. 5 *strigosa.*

Upper plane leaves on stem orbicular cordate ciliate .. .. 6 *pinangensis.*

Long creeping plants. Branches long, fruiting ones erect 3 in. long .. .. .. 7 *Merguina.*

Branches and spikes short .. .. .. 8 *pensile.*

** Erect plants 3-4 in tall. Lower plane ovate 9 *microdendron.*

Lower plane oblong .. .. 10 *Lankawiense.*

*** Erect bushy plants rooting at base only, 6 in. or more tall. Leaves glabrous. Lower plane ovate .. .. 11 *suberecta.*

Leaves oblong, on stem spreading green, rather large .. .. 12 *Plumea.*

On stem spreading green very small .. .. 13 *acutangula.*

On stem appressed small, copper coloured .. 14 *cuprea.*

Lower plane ciliate on broad recurved basal edge 15 *trichobasis.*

Lower plane large, oblong .. .. .. 16 *atroviridis.*

Base of stem bare, branches wide spreading at top only. Branches long, lanceolate, branchlets simple leaves approximate. Leaves on stem very small branchlets not overlapping 17 *Wallichii.*

Leaves on stem large, branchlets overlapping .. 18 *illustris.*

Branches much branched, leaves not touching .. 19 *inaequifolia.*

Leaves very small, close set. Stem leaves moderately large .. .. 20 *flabellata.*

Stem leaves very small, leaves silvery at back .. 21 *argentea.*

**** Long straggling plants several feet long, much branched, stem leaves remote. Bracts short, ovate. Two to 3 ft. tall not sarmentose. Leaves acute. Bracts larger more pointed .. .. 22 *caudata.*

Many feet long scandent leaves, blunt Bracts small .. .. 23 *laevigata.*

Leaves not herbaceous, very stiff, closely imbricating .. .. 24 *reptans.*

2. Heterostachyeae. Bracts dissimilar those of upper plane broad, flat, spreading, those of the lower plane smaller usually ovate cuspidate erect, spike thus resupinate, the smaller bracts in the same plane as the larger leaves and vice versa.

* Small prostrate creeping species. Spikes short and broad, the lower plane bracts nearly as large and like the upper .. .. .. 25 *Belangeri.*

Bracts of lower plane much smaller than upper, erect, very slender. Leaves glabrous distant, ovate very small .. .. 26 *Wattii.*

Leaves ovate, acute. Bracts ciliate, short, blunt 27 *phanotricha.*
Leaves medium, ovate approximate, bracts narrow, subacute .. .. 28 *oligostachya.*
Leaves ciliate on upper edge ovate. Bracts ciliate. Leaves very small .. .. .. 29 *Wrayi.*
Base creeping with erect, bushy stems about 3-4 in. tall. Leaves oblong or ovate. Bracts ciliate .. .. 30 *alutacea.*
Leaves very small ovate. Bracts short ascending, glabrous .. .. 31 *Morgani.*
Leaves scabrid .. .. 32 *scabrida.*
Elongate creeping plant with short branches. Leaves larger, ciliate .. .. .. 33 *montana.*
** Erect plants rooting only at base much branched. Stem leaves oblong, distant .12 in. long plant over 12 in. .. .. 34 *brachystachya.*
Leaves minute, spikes short, plant 12-18 in. .. 35 *chrysocaulos.*
Stem leaves remote ovate, thin, plant over 12 in. 36 *suberosa.*
Stem leaves oblong, caducous, stiff, erect, bushy plant 6 in. .. .. 37 *polita.*

1. S. Ridleyi, Bak. Ann. Bot. viii. 131.

Prostrate creeping on rocks in masses, little branched, branches 2 in. long, flat. Leaves of lower series oblong, spreading, blunt, ciliate, very close set; base cordate .05 in. Upper series ovate mucronate half as big, strongly ciliate. Spikes slender 4 angled .4 in. long. Bracts ovate, long acuminate.

Very rare. MALACCA: Mt. Ophir on Gunong Mering on rocks in the stream, submersed.

2. S. Curtisii, Ridl. n. sp.

Very small creeping plant forming a small mat. Leaves lower plane close, approximate, ovate oblong, blunt, base broad .05 in. long. Of upper plane close set, imbricate narrow, lanceolate, oblong, very small acuminate not cuspidate. Spike slender, narrow .75 in. long. Bracts erect, crowded lanceolate, long acuminate, narrow.

PERAK, Bujong Malacca (Curtis 3378).

Allied to *Lankawiense* but creeping, with much smaller leaves, narrower, longer spikes and narrower bracts.

3. S. selangorensis, Beddome MSS. n. sp.

Plant 1.5-2 in. tall, rooting in lower half simply pinnate or with very short branches on pinnae. Leaves of lower plane membranous unequal-sided, ovate rhomboid produced on upper side very acuminate ciliate all round the margin, prominently so in lower half, cordate at base much imbricate over stem, upper plane large, ovate ciliate with a large cusp. Fruit unknown.

SELANGOR, Semangkok Pass (Ridl. 12040).

Allied to *Ridleyi*.

4. **S. calcarea,** n. sp.

A very small slender creeping plant, branches .5 in. or less. Leaves lower plane distant membranous elliptic blunt base slightly narrowed not umbricating over stem .1 in. long; nerve conspicuous, of the upper plane obliquely ovate longer than broad, short, cuspidate. Spike 1.75 in. long slender, bracts rather long lanceolate acuminate with a setaceous point.

Rare. SELANGOR, Batu Caves (Ridley 8772).

This is very delicate moss-like plant is remarkable for the length of its spikes which are much longer than the branches.

5. **S. strigosa,** Bedd. ined.

Small prostrate plant growing in masses, stems very slender. Leaves lower plane ovate mucronulate base round, edges ciliate sprinkled all over with short hairs .04 in. Upper plane ovate long acuminate the tip usually recurved, not overlapping, strigose and ciliate on edge. Spike square .25 in. long. Bracts ovate triangular cuspidate ciliate and strigose.

Mountain forests.

SELANGOR, Ginting Bidai (Ridley 7875, 7825), Klang Gates 13442, 13446.

6. **S. pinangensis,** Spring Mon. ii. 205. Bak. Fern-Allies, p. 67.

Entirely flat, creeping, stems very slender 1.5 ft. long closely set with leaves, with few short branchlets. Leaves of lower plane close, spreading oblong blunt .1-.12 in. long closely set with leaves, with few short branchlets. Leaves of lower plane close spreading oblong blunt .1-.12 in. long membranous equal-sided base rounded both sides imbricate slightly over stem, lower half ciliate. Leaves of upper plane ⅓ as long oblique ovate with cusp nearly as long as blade lower ones on stem, orbicular cordate, edge ciliate. Spikes short, square. Bracts ovate, acute, keeled.

PENANG (Gaudichaud).

Distrib. Assam.

Note.—The only specimen I have seen of the type, the Assam plant is not ciliate at all on the lower plane leaves. It resembles the common cultivated *S. serpens* notably in the upper plane leaves on stem and base of branches which are orbicular cordate and ciliate on edge. I suspect it is nothing more than an escaped *S. serpens,* a native of the West Indies.

7. **S. merguina,** Spring Mon. ii. 81.

S. Mayeri, Hieron. Engl. & Prantl. Nat. Pfl. Fam. 14, 700, Rosenberg, p. 203.

Stem long creeping and rooting over a foot long, erect branches 3 in. long with distant leaves elliptic rounded, keeled. Leaves lower plane ovate elliptic round at tip base broad unequal, keeled .06 long, upper plane small imbricating ovate short cuspidate, small. Spikes slender 2 in. long. Bracts ovate acuminate.

Common in forests.

SINGAPORE: Bukit Timah. PAHANG, Telom (Ridley 13987); SELANGOR, Klang Gates (Ridley 13443 and 13444) Bt. Kayu Kapur (10634); Batu Caves (8151 and 13445); Ginting Peras (7827), Rawang (7830). PERAK, Taiping Hills (11472); Tanjong Malim (11857), Temengoh (14474). PENANG, stone quarry, chitty temple (Curtis 1734).

Distrib. China, Mergui.

The type from *Mergui* (Griffith) is in a very young state but there can be little doubt but that is the same as the other species here represented.

8. **S. pensile,** Ridley n. sp.

Stems over 12 in. long pendulous with short simple branches 1 in. long and some 1.5 in. long or less branched again. Leaves, lower plane on stem rigid, persistent approximate .08 in. oblique ovate, oblong, blunt, base cordate, upper lobe very shortly ciliate imbricating over stem. upper plane obliquely lanceolate short, cuspidate. Spikes .2 in. long. Bracts lanceolate shortly acuminate.

Pendent on damp, shady rocks, at 5,500 ft.

PERAK, Gunong Inas (Yapp).

I cannot match this plant with anything. The leaves have somewhat the form of those of *trichobasis* but they are smaller and the habit of the plant is quite different.

9. **S. microdendron,** Ridl. n. sp.

Small erect plant 3 in. tall rooting only at the base branching .25-.5 in. from base, the leaves on stem not imbricating. Leaves, lower plane ovate, acute rather rigid imbricating above base, cordate not overlapping, stem .08 long. Of upper plane obliquely ovate lanceolate, rather narrowed, cusp much longer. Spike .18 in. long, bracts ovate acuminate.

Penang Hill (Ridley 7085).

A dwarf erect plant, the lower branches 1.5 in. long with short secondary branches with several very short branchlets bearing spikes. Baker referred this to the Ceylon *integerrima,* Spring, and Beddome to *plumosa*. *S. integerrima,* is quite prostrate with thin leaves and closely resembles *S. proniflora* in habit.

10. **S. Lankawiensis,** Ridl. n. sp.

Small erect much branched plant about 5 in. tall, rooting only at the base. Leaves lower plane on stem .1 in. long on branches shorter and more crowded, oblong tip rounded oblique, base cordate upper edge at base recurved ciliate minutely. Of upper plane elliptic, rather large not oblique, cusp moderate occasionally ciliate. Spike .25 in. long. Bracts ovate lanceolate acuminate squarrose.

Lankawi islands; Pulau Rawei, Adang Group.

11. **S. suberecta,** Bak. Journ. Bot. 1884, 245. Fern-Allies, p. 74.

Stems nearly erect creeping slightly at base 4-9 in. tall (all young) branches ascending, numerous rather short. Leaves thin green, of lower plane ovate acute .05 in. base broad rounded, clasping partially the stem, of upper plane ovate narrowed at tip, midrib conspicuous prolonged into rather a long mucro.

MALACCA (Griffith).

There is no fruit on any of the specimens which are obviously very young. Baker says the lower plane leaves are shortly ciliated on the upper side, I see no trace of this.

12. **S. plumea,** Spring Mon. ii. 136; Bak. Fern-Allies, p. 76.

Stems 12-18 in. or more, rather stout rooting from base, often grooved on one face decompound, the whole 6 in. or more wide. Leaves dark green, of lower plane distant spreading on stem, close set above and imbricate at base, oblong lanceolate cordate, tip acute, unequal sided not ciliate, of upper plane small ovate, edge ciliate cusp as long, slender hardly decurrent on the back. Spike .5-.75 in. long, .1 in. through. Bracts ovate acuminate shortly keeled.

Common in forests.

JOHOR, Batu Pahat, Bukit Patani (Ridl. 11113, 10984); Sednah (13471); Castlewood (11494). MALACCA Griffith). PAHANG, Kwala Lipis (Machado); Telom Ridley 13989, 17993); Gunong Tahan 3,000 ft. NEGRI SEMBILAN, Gunong Angsi (Ridl. 11866). SELANGOR, Ginting Bidai (7826) Bukit Hitam (Ridl. 7817); Semangkok (12038). PERAK, Jor (Ridl. 13991); Temengoh (14468); Taiping Hills (14460). PENANG (Lady *Dalhousie*) the Hill (Ridl. 14159).

13. **S. acutangula,** Spring Mon. ii. 206, Bak. Fern-Allies, p. 75.

Erect, rooting from base stem angled above decompound densely decompound, 6 in. Leaves, lower plane distant below, spreading glabrous, broad lanceolate rhomboid acute, bright green, .8 in. long, not imbricate. Leaves of upper plane half as long, ovate with a long cusp ciliate. Spikes square .25-.5 in. Bracts ovate acute crowded strongly keeled shortly acuminate.

MALACCA (Griffith).

A rather delicate species with small leaves, apparently rare.

14. S. cuprea, n. sp.

Whole plant copper-coloured, about 6 in. to 12 in. tall, stem rather stout emitting descending roots, branched above with erect branches. Leaves on stem closely appressed, erect, very small. Leaves of the lower plane coriaceous, oblong, blunt, base broad equal-sided .05 in. long, very close set; leaves of the upper plane ovate, oblique, nearly half as long with a long cusp. Spikes nearly .5 in. long, rather slender, bracts ovate, long acuminate, squarrose.

Mountain woods. PAHANG, Gunong Berumbun, Telom (Ridl. 13992); Wray's Camp 16198. SELANGOR, Rawang (Ridl. 7822). DINDINGS, Telok Sera (Ridl. 8358); PERAK, Taiping Hills (Ridl. 11427); Bujong Malacca (Ridley 9574, Curtis 3377), Bidor, near Tapah (Ridl. 14016).

This is named *suberecta Bak.*, by Beddome, but it seems to me quite a different plant. It often forms little bushy tufts about 5 in. tall and 2-5 through.

S. cuprea, var. major. Plant over 12-18 in. Leaves on stem more spreading, and larger, leaves of both planes and spikes twice as big.

PAHANG, Gunong Berumbun (Ridl. 13992); PERAK, Taiping Hills (Ridl. 14460); Goping (Kunstler 519); Temengoh (Ridl. 10458).

15. S. trichobasis, Bak. Journ. Bot. 1884, 275. Fern-Allies, p. 76.

An erect plant about 12 in., tall rooting only from the base, much branched above with ascending branches, lower ones often 7 in. long with short branchlets 1-3 in. long and secondary branchlets .5 in. or more, densely foliate, deep green. Leaves of lower plane on stem rhomboid, oblong blunt .1 in. distant, upper ones oblong truncate, the upper edge at base widened, recurved strongly ciliate, the base subcordate, imbricating on stem. At the fork of each pair of branchlets an ovate subcordate strongly ciliate leaf, between the lower plane leaves, on the lower side. Upper plane leaves ovate, ciliate on edge with a scabrid cusp as long or longer. Spike .5 in. long, grey-green. Bracts lanceolate-acuminate to cuspidate, strongly ciliate on edge or denticulate.

Common in forests from sea level to 4,000 feet.

SINGAPORE, Bukit Timah (Ridley 605); JOHOR, Castlewood (9192). PAHANG, Telom, 4,000 ft. alt (13984); NEGRI SEMBILAN, Gunong Angsi (Winkler 1781). SELANGOR, Rawang (Kloss); Semangkok Pass (Ridley 8668): KUALA LUMPUR (Bishop Hose); PERAK, Tapah (Ridley 14022); Temengoh (Ridley 14470); Penang Hill at about 2-3,000 ft. altitude, (Curtis 3056).

This species has commonly been named *plumosa* by Baker in the Kew Herbarium, but his description of that species applies to Spring's *S. radicata* which he includes under this and which he also names *S. plumosa* in the herbarium. In this Beddome has followed him. But *S. radicata,* Spring, is a prostrate, creeping plant, in every way distinct from this species, which I cannot find, has been described anywhere else in the very numerous publications of species. It appears to be absolutely confined to the Malay Peninsula; Van Rosenburg reduces it to a variety of *Plumea* but it is much thinner and more compact plant and the large auricle strongly ciliate distinguishes it readily.

var. *strigosa.* Lower half of lower plane leaves covered with short, stiff hairs often reduced to pustules.

PAHANG: Wray's Camp, Gunong Tahan (Ridley).

Native names Paku Ambong, Paku Gayam.

16. **S. atroviridis,** Spring. Mon. ii. 124. Bak. Fern-Allies, p. 77. Stems ascending, suberect, 6 in. to 12 in. tall, rooting from base, rather stout, grooved, branches subpinnate. Leaves of lower plane spreading, oblong, rhomboid, oblique, smooth, dark, shining-green, base narrowed, very oblique. .0-.12 in. long. Upper plane in 2 rows, oblong stiff, rather large with a short cusp and low keel. Spikes 1 or 2 at branch ends, .25-1 in. long, slender, square. Bracts ovate, acutely acuminate.

Common in woods.

SINGAPORE, Garden Jungle; Changi (187). JOHOR, MALACCA: (Griffith); Mt. Ophir (Ridley 9990). SELANGOR, Semangkok Pass (Ridley 8770, 8669, 15628). PERAK, Keledang (Curtis 3810); Gunong Inas 4,000 ft. (Yapp) small form; Goping (Kunstler 271); Taiping Hills 3,000 ft. (Wray). TRINGANU, Bundi (Rostado). PROV. WELLESLEY, Bukit Panchur (Ridl. 12635).

Distrib. Madras, Malay Isles, China.

Native name. Paku Lumut, Paku Sutra.

17. **S. Wallichii,** Spring, Mon. ii. 143, Bak. Fern Allies, p. 90.

Stem erect rooting at base only, .2-.8 in. tall, stout, branches 8 in. or less long lanceolate on thin branchlets, very numerous, crowded 1 in. long. Leaves of lower plane deep green rather thin, very close set, oblong, lanceolate slightly curved upper corner acute .08 to 12 in. long obscurely petioled not ciliate, base truncate not imbricate over stem, of upper plane ¼ as long elliptic acute in pairs, falcate. Spikes square .4 in. long, rather slender. Bracts acuminate, Keeled to base.

JOHOR, Batu Pahat (Ridley 11062). PAHANG, Gunong Tahan 3,300 ft. (Robinson 5414) stalks dull red. MALACCA (Pinwill, Cuming). SELANGOR, Batu Caves (Ridl. 8134). NEGRI SEMBILAN, Perhentian Tinggi (9869). PERAK, Taiping Hills (Wray); Goping (Kunstler). PROV. WELLESLEY, Ara Kudah (6860); Penang (Wallich) Penara Bukit (Curtis).

Distrib. India, Malay Isles.

Native name. "Paku Burunas."

18. S. illustris, n. sp.

Stout ascending, erect plant 12 in. or more, rooting only at base, covered on the upper face with numerous blunt, lanceolate leaves with round bases .15 in. long in two or more rows, branches lanceolate, 7 in. long with simple branchlets 1 in. covered with close imbricating leaves. Of lower plane oblong, tip rounded, blunt base oblique not imbricating over stem, not ciliate. Of upper plane distichous imbricating ovate oblique, short, cuspidate. Spikes usually paired on the branch ends, small, slender .25-.75 in. long. Bracts short, ovate, acute.

Pahang, Tahan River (Ridley 2172); Selangor, Cheras Goodenough 8195); Ginting Bidai (Ridley 7819); Sempang (15630); Semangkok (8772). Perak, Goping (Kunstler 516); Batang Padang (Kunstler 7764); Gunong Kerbau (Robinson); Temengkok (14459); Taiping Hills (Ridley 5184); Tringanu, Bundi (Rostado).

A very beautiful and easily distinguished plant, a deep green frond on a simple erect stem, the branches over-lapping, the branchlets simple except at the extreme tip where they fork and bear 2 or 3 very short slender spikes.

19. S. inaequalifolia, Spring Mon. ii. 148. Bak. Fern-Allies, 91.

Stems sarmentose 3-4 ft. long, pinnae ascending about 3 in. long, branchlets .75 in. 1 in. distant with 3-4 branches near base of pinnae .5-.25 in. long. Leaves on stems and main branches distant, oblong, blunt base not imbricating .15 in. long on branchlets (lower plane) smaller, distant, oblique, of upper plane oblong elliptic slightly falcate pointed not cuspidate midrib fairly prominent. Spikes slender 1.25 in. long or less, quadrate. Bracts short, ovate, acute.

Perak, Temengoh (Ridley 14467); Telok Pinang near Ipoh (Ridley 9570); Goping (Kunstler 7474).

Distrib. Assam, S. India, Sumatra, New Guinea.

20. S. flabellata, Spring Mon. ii. 174, Bak. Fern-Allies, p. 99.

Plant 18 in. tall. Stems rather stout, covered with distant broad-based ovate lanceolate leaves densely above, upper part leafy, deltoid and decompound 6 in. long, 8 in. wide. Branches densely leafy 3-4, pinnate below. Leaves, lower plane elliptic to rhomboid, blunt, bases broad, very close set. Of upper plane ovate, oblong with a very short blunt point, keeled imbricating. Spikes square .5-1 in. long. Bracts ovate, acutely long, acuminate.

Rare. Pahang, Kota Glanggi (Ridley 2164); Tanjong Antan, Pahang river (2166). Johor, Kota Tinggi (Ridley 4140). Perak, Goping (Kunstler 558); Kamunung (Curtis 3309).

Distrib. All tropics except Africa.

21. S. argentea, Spring Mon. ii. 150. *S. caulescens,* Spring var. *argentea.* Bak. Fern-Allies, p. 94.

Stem erect not branched below, with distant appressed leaves, deltoid and decompound above, 8-10 in. across, with several branches, branchlets 3 in. long, branched again 1 in. and pinnules 25 in. long. Leaves lower plane oblong, rhomboid, blunt, very small and numerous, close set, shining green above, silvery beneath. Upper plane, leaves very close imbricating small in 2 rows, oblong, short, cuspidate. Spikes .5 in. long, square, slender. Bracts lanceolate, ovate acuminate.

Woods.

PENANG, Waterfall. Abundant (Curtis and all collectors): Lankawi, Telaya Tujoh (Ridley 15673).

Distrib. Celebes.

22. S. caudata, Spring Mon. ii. 139. *S. canaliculata,* Bak. Journ. Bot. 1885, p. 21. Fern-Allies, p. 91 (in part).

Stems suberect 2-4 ft. long, deeply grooved above. Leaves on stem distant. Branches diffuse 4-9 or more in. long, often distant, branchlets about 1 in. long with 4 or fewer secondary branchlets simple or forked .5 in. Leaves, lower plane distant on branches imbricating on branchlets, rhomboid oblong, tip subacute, base slightly cordate with a short lobe on lower base not imbricate over stem, of upper plane obliquely oblong nearly blunt strong keeled. Spikes slender, square .25 in. long. Bracts short, ovate, subacute.

PERAK, Chanderiang (Kunstler 5786).

Distrib. Indo-Malaya, Polynesia.

Note.—As Spring says this is not easy (at least in the herbarium) to separate from *laevigata.* It has a much shorter stem and does not climb like *laevigata* and the leaves are pointed at the tips, the stem leaves are also much bigger. some of Spring's plants are undoubtedly *laevigata.* Baker's *canaliculata* is a mixture of several species.

23. S. laevigatum, Spring, Mon. ii. 137 (not of Baker). *S. Willdenowii,* Bak., Gard. Chron. 1867, 950.

A long climber forming thickets often 30 or more feet long. Stem grooved. Pinnae deltoid 4 in. long with numerous branchlets with 1-3 branches .5 in. long. Leaves of the lower plane rigid, rhomboid, oblong, .8 in. long, blunt, base with a minute lobe as in *caudata,* midrib prominent. Leaves of the upper plane very small close set, imbricating oblong oblique. Spikes .25 in. long, subterete. Bracts very short, ovate, subterete. Bracts very short, ovate, subacute, broad. Sporanges large. Common all over open country, forest edges and cleared spaces in forest. Troublesome to get through as the stems are rough from the base of the leaves.

SINGAPORE, Bukit Timah. JOHOR, Bukit Soga (Ridley 1071); Pulau Tiuman. PAHANG, Kwala Lipis (Machado 1557) Kota Glanggi. MALACCA: (Maingay); Alor Gajah (Hervey). NEGRI SEMBILAN, Bukit Tampin (Goodenough 1865). SELANGOR, Batu Caves (1679). PERAK, Taiping Hills (Wray 764). PENANG (Wallich, etc.) KEDAH PEAK; Yan.

Distrib. Indo-Malaya, Cambodia.

Native names. Paku Salumah; Paku Lumut, Paku Tanjong.

Note. It is not rare to find the foliage beautifully shot with blue in damp spots.

24. S. reptans, Ridl. n. sp.

Stems tufted 4-5 in. tall lengthening to over a foot and stoloniferous, branches 1 in. or less, with distant ovate cuspidate, cordate, ciliate pale leaves nearly .1 in. long. Leaves of lower plane stiff, very closely imbricating, orbicular ovate long, cusped, ciliate, pale truncate .05 in. long. Leaves of the upper plane nearly as large, oblong with a very long cusp not ciliate. Fructification not seen.

Pulau Adang Group, Rawei isle (Ridley 15930).

This remarkable plant belongs to the group *Rosulatae* which includes 11 species occurring in dry countries or dry spots in Africa, Madagascar, India, China and Java and S. America. The most closely allied to this one is the Indian *S tamariscina* Spring, *S. bryopteris* Bak., Fern Allies, p. 87 from which it differs in its stoloniferous habit and strongly ciliate leaves of the lower plane. The plant forms tufts of 3 or 4 short stems, which eventually lengthen out for over 12 in., all the leaves perishing and falling off or remaining withered as do the branches. It then produces towards the ends of this stem one or more tufts of stems which take root. The under side of the leaves on the branches becomes reddish-silvery and they are very stiff and dry.

II. HETEROSTACHYEAE.

25. S. Belangeri, Spring, Mon. ii. 242. *S. reticulata,* Spring, ii. 235, *S. proniflora,* Bak., Journ. Bot. 1885, p. 156.

Very slender, prostrate plant with very short branches. Leaves on stem distant, ovate, blunt, leaves of the lower plane ovate acute .1 in., membranous, pale green inequilateral, cordate, ciliate at base, much imbricate on upper side of stem. Leaves of the upper plane half as long, broad, ovate, cusp rather long keeled. Spike broad .25 in. long resupinate. Bracts upper plane lanceolate acuminate, much imbricate, ciliate bracts of lower plane rather smaller, ovate, cuspidate, pale, ascending.

SINGAPORE, Galang, 10828. MALACCA (Griffith). SELANGOR, Batu Caves.

Distrib. Tropical Asia.

26, **S. Wattii,** Baker, Fern-Allies, p. 109.

A very small species rhizome creeping, very slender. Leaves very delicate, thin, distant bright green .05 in., as far apart, ovate, blunt, base broad not amplexicaul, upper plane elliptic lanceolate, with a long cusp, distant. Spike very short and broad, up to .25 in., leaves of lower plane approximate, thin, green oblong, shortly acute, midrib conspicuous, edge minutely toothed, of upper plane very much smaller, ovate lanceolate ciliate. Sporange large.

Mountains on clay banks.

SELANGOR, Bukit Hitam (Ridley 7818); Bukit Kutu (7823); Semangkok (12037). PERAK, Temengoh (14472); Batang Padang (13988).

Distrib. Manipur.

27. **S. phanotricha,** Baker, Fern-Allies, p. 109.

Stems very slender, prostrate. Leaves on stem distant, ovate base round, very shortly ciliate, small, of lower plane similar somewhat overlapping, stem distant, of upper plane lanceolate falcate, with a long cusp, distant. Spike .18 in. long, resupinate, larger (lower plane) bract close set ovate, lanceolate, much ciliate on edge, cuspidate, smaller, of upper plane paler, lanceolate, long, cuspidate, ciliate. Sporangia large, very rare.

PAHANG, Gunong Tahan; (Wray's Camp. 16201) part. SELANGOR, Sempang Mines (Ridley 15633).

Distrib. Labuan, Sarawak.

Very near Belangeri, but the leaves more distant and the spikes much narrower.

28. **S. oligostachya,** Baker, Ann. Bot. viii. p. 132.

Stems very slender, creeping, prostrate with a long root from each fork, about 6 in. long with few branches. Leaves of lower plane not touching, ovate, acute, base broad, cordate, edge ciliate or not, of upper plane very small, ovate, oblong, falcate densely ciliate. Spikes .5 in. long, upper bracts linear, oblong, acuminate. Lower smaller, lanceolate, acuminate, strongly ciliate.

Mountains 3,000 to 4,000 ft. alt.

JOHOR, Gunong Pulai. MALACCA, Mt. Ophir on Gunong Mering (Ridley 3347). PAHANG, Gunong Tahan (Robinson 5363). SELANGOR, Ulu Gombak (Ridley). DINDINGS, Lumut.

Note. Baker gives the larger leaves as *not* ciliate, but even in the type the younger ones are distinctly ciliate, but many are glabrous.

29. S. Wrayi, Baker, Fern-Allies, p. 113. *S. Kunstleri,* Bak., Kew Bull. 1893, p. 14.

Stems creeping and rooting, 6 in. or more, slender. Leaves of lower plane ovate, triangular, subobtuse, base cordate, strongly ciliate, on upper edge very small, of upper plane lanceolate long, acuminate, cusp recurved, edge strongly ciliate. Spike .4 in. long, lower plane bracts lanceolate acuminate, edge ciliate. Upper plane ovate, strongly ciliate with a long cusp and prominent midrib.

Perak, Tapah (Ridley 14024); Taiping Hills, Birch's Hill Wray 668, Kunstler); Taiping (Ridley 14460); Temengoh (14465).

Beddome refers this to *zeylanica,* Baker, but though in many plants a general habit resembles this, that species has only the only plane leaves faintly ciliate, and the lower plane bracts are of a very different shape. I cannot separate *S. Kunstleri,* Bak.

30. S. alutacia, Spring, Mon. ii. p. 237. *S. alutacea,* Bak., Fern-Allies, p. 110. *S. Tansleyi,* Bak., Kew Bull. 1906, p. 205.

Stems slender, creeping a few inches, branches ascending 3-6 in. tall, with ascending branchlets 1 in. long with 3 or 4 secondary branchlets, bearing 2 or 1 spike. Leaves of lower plane rather stiff, ovate, subacute, not touching below, closer set above, base cordate semiamplexicaul .05 in., upper edge ciliate, upper plane lanceolate long, cuspidate, cusp recurved. Spikes .25-.5 in. long, rather slender, lower plane leaves lanceolate, acuminate, spreading, ciliate, upper plane much smaller, ovate long, cuspidate, strongly ciliate.

Hills, on clay banks. Common.

Pahang, Gunong Tahan (Ridley 15959) Kwala Lipis (Machado). Negri Sembilan, Gunong Angsi (11873). Selangor, Bukit Kutu (7829, 7824); Rawang (7821). Perak, Taiping Hills; Temengoh (14464, 14471); Kamuning (11871); Gunong Keledang (9576). Penang (Gaudichaud, Norris, etc. Dindings, Lumut.

The type of *alutacia* was a plant collected by Gaudichaud in Penang, which I have not seen, but I have little doubt as to what Spring intended by his species. The base of the stem is creeping for about 6 inches and though often fruiting from short branches, at times sends up an erect often bushy stem with much longer spikes which is usually yellow-brownish. The leaves of the lower plane are usually glabrous, but in some specimens strongly ciliate. The bracts are nearly always distinctly minutely denticulate, often ciliate. Baker's variety *sphaerophylla* has little ovate round leaves, rather close set on the stem, but it is easy to find every grade from the larger almost triangular, oblong leaves to these little round ones in the same locality. Specimens occur too, in which the bracts are shorter than usual, perhaps not fully developed. Baker's *S. Tansleyi* is one of those. The type of this species is preserved in Herb. Kew, but the description of the specimen hardly accords with it.

31. **S. Morgani,** Zeiller, Bull. Bot. Soc. France, xxxii, p. 77.

Slender erect plant 4-8 in. tall with few short 1 in. rather distant branches simple or nearly so. Leaves lower plane very small distant, ovate, rather blunt with a broad base in. long, keeled minutely, denticulate, of upper plane lanceolate cuspidate, recurved. Spikes slender 1 in. long, lower plane bracts imbricating ovate, blunt or very slightly acute, upper plane ovate lanceolate cuspidate toothed, nearly as large.
Very local, Mountains at 6,000 ft.

PAHANG, Gunong Berumbun (Ridley 13985, 13986). PERAK, Gunong Riaw and Gunong Kerbau (Morgan, Robinson).

The Gunong Berumbun plants are much more distinctly ciliate toothed on leaves and bracts.

32. **S. scabrida,** Ridley n. sp.

Small plant 2-4 in. long, creeping ascending with few simple or sparingly branched branches, stem leaves and bracts strigosely, hairy all over. Leaves, lower plane ovate, blunt $\frac{1}{61}$ in. long, base broad, round, distant. Of upper plane ovate with long excurved points. Spikes .75 in. long, rather slender. Bracts, lower plane very numerous, ovate. Of upper plane lanceolate acuminate, smaller, pale.

Rare. PAHANG, Gunong Tahan, (Ridley 15960).

Allied to *S. Morgani* but entirely hairy and with broader and shorter lower plane bracts.

33. **S. montana,** Ridley n. sp.

Stems slender, creeping prostrate 9 in. long, branches few, short with 3 branchlets. Lower plane leaves approximate on stem, ovate oblique and rounded at base, rather stiff and a little overlapping the stem .12 in., upper ones more lanceolate, of upper plane ovate acuminate with a long cusp. Spikes resupinate .4 in. long. Lower plane bracts lanceolate acuminate, edge shortly ciliate, spreading. Upper plane ovate long acuminate strongly ciliate. Sporange large.

PAHANG, Wray's Camp, Gunong Tahan (Ridley 16200).

Perhaps nearest *S. tenera* but entirely creeping with the upper plane bracts strongly ciliate.

34. **S. brachystachya,** Spring, Mon. ii. 255, Baker, Fern-Allies, 113. *var. ornata. S. ornata,* Spring, Mon. ii. 259.

Stems tall and stout over two feet with long roots from the lower part and distant coriaceous, oblong, blunt, leaves

.1 in. long, branches ascending over 12 in., branchlets 5-6 in., ultimate branchlets 1 in. Leaves lower plane stiff, rhomboid, oblong, base oblique, rounded, of upper plane lanceolate, imbricate, long cuspidate cusp curved, keeled. Spike 1 in. long, lower plane bracts spreading, stiff, linear, lanceolate oblique, of upper plane ovate, rounded, pale, denticulate, cusp long, keel prominent, green.

Mountain forests 3-5,000 ft. alt.

PAHANG, Gunong Tahan, Wray's Camp (16195) and Teku woods (15958), Telom (13990). SELANGOR, Semangkok Pass (12038). PERAK, Taiping Hills 4-5,000 ft. (Kunstler).

Distrib. Ceylon, Malaya.

35. S. chrysocaulos, Spring, Mon. ii. 250, Baker, Fern-Allies, p. 117.

Erect slender plant 6-15 in. tall with slender branches 2.5 in. long and short branchlets, stem yellow. Leaves small, remote, of lower plane ovate, triangular, blunt, base round serrulate, distant even on branchlets, very small, of upper plane ovate oblique cuspidate minute. Spikes numerous, resupinate .12 in. long .25 in., lower plane bracts spreading, ovate lanceolate, of upper plane ovate, with a long cusp nearly as large.

Rare.

JOHOR, Gunong Banang (Ridley 10977). PENANG (Wallich).

Distrib. Himalayas, Burmah, Java.

36. S. suberosa, Spring, Mon. ii. 252. Baker, Fern-Allies, p. 119.

Stems tall, red, strongly rooting at base, 12-18 in. tall, copiously pinnate, branches about 4 in. long. Leaves on stem distant, ovate triangular, blunt, oblique .8 in. long. Lower plane leaves on branches closer, but not touching, of upper plane half as long with long cusp. Spikes resupinate .25-.75 in. long, bracts of plane lanceolate blunt, spreading, of the lower plane ascending, ovate with a large cusp.

PERAK, Temengoh (Ridley 14467). PENANG (Norris), Waterfall (Ridley 7034).

Distrib. India. Has the habit of Chrysocaulos.

37. S. polita, Ridley. Journ. Federated Malay States Mus. vi. 202.

Plant erect rather slender but stiff, 6-8 in. long, branches rigid, ascending about 4 in. long. Leaves of lower plane lanceolate to ovate lanceolate, base broad, round imbricate, on stems distant deciduous having small bases, oblique firm, polished dark green .05 in. long, of upper plane half as long lanceolate long, cuspidate. Spikes 15-1 in. long, slender resupinate. Bracts of lower plane short, triangular acuminate blunt, little longer than the large sporange, of upper plane little longer, lanceolate triangular, quite blunt.

Rare.

PAHANG. Woods by the Teku, Gunong Tahan (Ridley 15951).

Dubiae.

S. longiaristata, Hieronymus in Hedwigia, Vol. L. 16, gives *S. longiaristata*, Hieron, as collected by me "on Bukit Punah in 1903," (evidently Bukit Timah) with no number. *S. longiaristata* from Borneo specimens so named by him in Herb, Kew, closely resembles *S. plumea* except that its lower plane leaves are smaller, I have seen nothing exactly like it from the Malay Peninsula.

S. tenuifolia, Spring, Mon. ii. 253 is given from Malacca by Rosenberg, with no collector's name. It is an Indian plant.

S. decipiens, Warb. Monsunia I. 127. "Malacca" Rosenburg was based on a plant collected by Helfer in the East Indies. Helfer was never in the Malay Peninsula.

S. plumosa, Bak., Fern-Allies, p. 50. Was presumably based on *Lycopodium plumosum,* Linn., to which he added a number of species from India and Malaya, including such distinct species as *radiata,* Spring, *monospora,* Spring, *biformis,* A. Br., etc. with none of these has Linnaeus' plant any affinity. It is a West Indian species of a dwarf creeping habit not bearing any great resemblance to any of our species. The type is a mere fruitless scrap but should be identifiable.

III. RHIZOCARPEAE.

Azolla, Lam.

Minute floating plants with much branched stems and sessile minute imbricate deeply lobed leaves; roots fine from underside of stem. Sporocarps in groups of 2 and 4 at the base of a stem branch.

A. pinnata, R. Br. Flind. Voy. ii. 611. t. 10. Bak., Fern-Allies, p. 138.

Root fibres fascicled and feathered. Fronds .5 (to 1 in.) long, oblong or deltoid with numerous compound branches, leaflobes firm, red.

SINGAPORE, Galang, etc. Common in the water holes in Chinese Gardens where they grow *Pistia,* etc. for their pigs. No doubt introduced.

Distrib. Type form in Australia with fronds up to 1 in. long; the var. *Africana,* Desv., here with small fewer more compound branches.

Distrib. Tropical Africa, Asia, Japan.

MARSILIACEAE.

Marsilia.

Creeping mud-plants rhizome long, slender. Leaves solitary or in tufts, of a slender usually long petiole and 4 sessile obcuneate deltoid leaflets. Sporacarps oblong or globose, sessile or stalked at the base of the leaves, containing both macrospores and microspores.

Species about 50. Whole World.

M. erosa, Willd. Sp. v. 540.

M. minuta, L. Mantissa 308 in part. Bak., Fern-Allies, p. 140 in part.

Rhizome long, creeping, slender or short, stout red, hairy buds especially (or glabrous). Leaves crowded or on slender rhizomes distant petioles, slender 6 in. or less, more or less red, hairy at base and top, leaflets obcuneate, top round, fan-shaped .5 in. long .75 in. wide, glabrous. Sporocarps 2 or more at base of a leaf .15 in. long, oblong, rounded, slightly crenate, densely hairy as in the short free pedicel.

PROV. WELLESLEY in ditches, Nibong Tebal (Ridley). PENANG, formerly very abundant in ditches along the golf course.

Distrib. India, Java, Philippines, Loo Cho.

This plant varies much in size and there is a very small form with very small leaves, the leaflets not .25 in. long and longer pedicels than the above described. The tall leaved form is recorded in books as aquatic and sterile. This is not so in Province Wellesley where it grew in mud and was fertile. It was from the small form that Linnaeus gave the species its unfortunate name.

CHARACEAE.

The Characeae are fragile submerged green plants with branched stems furnished at the nodes with whorls of branchlets (often called leaves) at the base of which are two or more rarely one whorl of cells (stipulodes). The branchlets are simple or one or more times forked into rays with partial or complete whorls of secondary branchlets (bracts). The male and female organs are developed at the extremities of the branchlets or at their nodes in the axils of the bracts. The male organs (globules) are spherical at first, green, later red or yellowish. The female (nucules) subglobular, ovoid or fusiform, reddish yellow or olive, consisting of a *nucleus* with 5 cells coiled spirally round it and terminated by a *coronula* of 5 cells in 1 row or 10 less prominent in 2 rows.

These plants have not been carefully collected in the Malay Peninsula, but I have preserved some specimens which Mr. J. Groves, the best authority on these plants has been kind enough to identify.

The species are to be found in ditches, ponds and even puddles. Indeed I on one occasion found the foot-prints of a rhinoceros in the middle of the jungle in the Dindings where water had collected quite full of a species of *Nitella,* the fruit having probably been brought in mud by the rhinoceros from some distance. The species seem to be generally widely distributed, and occur all over the world. There are two genera represented in the Malay Peninsula viz. *Nitella* and *Chara.*

NITELLA.

Internodes of stem pellucid, without a covering of cortical cells. No whorl of stipulodes below the whorl of branchlets. Nucule with a crown of 10 small erect cells (coronula).

N. acuminata, A. Braun, Kew Journ. Bot. I. p. 292. Fragmente einer Monogr. der Characeae, p.

A very delicate thin plant monoecious. Leaves usually 8 in a whorl. Fruiting whorl short-leaved. Nucule with persistent Coronula, the upper twice as long as the lower.

SINGAPORE, ditches in Tanglin (Ridley 9137).

Distrib. All Tropics.

N. pseudo flabellata, Braun lcc. p. 54.

Very slender. The branches half an inch long, much branched at the tops forming a dense bushy mass .25 in. wide. Whole plant 1-2 ft. long. Monoecious, Nucule with short coronula.

SINGAPORE, ditches at Galang (Ridley 10827).

Distrib. Java, Borneo, Chittagong, China.

N. microcarpa, Braun, Monats. der Berl. Akad. 1858, p. 357. Fragmente, p. 71. Pl. ii. fig. 56-57. iii. fig. 78.

A thin plant much branched, whorls crowded, densely tufted at the ends, terminal ones long, 2 celled, Nucules very minute oblong or subglobose, fuscous with 6 spirals.

DINDINGS, Bruas (Ridley 7144) and Gunong Tungal (Ridley 7144). In muddy water on a path in jungle and rhinoceros tracks.

Distrib. N. and S. America.

Chara.

Internodes of stem opaque, usually with a covering of slender parallel cortical cells, and generally with 1 or two whorls of bracts below each whorl of branchlets. Nucule with a crown of 5 erect or spreading cells in one row.

Whole world.

C. gymnopitys, Braun, Fragmente, p. 124. Plant Mull. Linnaea 28, p. 708.

Forming great masses, stems long, slender with distant whorls of branches often 2 in a part frequently rebranched with short whorls.

SINGAPORE, Garden lake (Ridley 8089) in vast abundance. Mr. Groves notes on the ticket that the nucules are unusually globose.

Distrib. Arracan, Australia, New Zealand.

NEW CHALCID PARASITES FROM MALAYA.

By A. A. Girault.

Gordonvale (Cairns), Queensland.

The following chalcid-flies are named from among a number sent to me by Mr. C. F. Baker, comprising the few I could name with certainty. The collection showed marked affinities to Australian forms; novel genera were rare. My facilities would not allow me to study the others, regrettable because I could have made a comparative study, and collections of these very numerous insects are not common nor their study at all well-advanced. Remarkable and attractive as they are, they seem to escape ordinary observation while even the trained entomologist sees only the larger kinds. The myriads of minute kinds form a wonderland whose marvels are known to the very few only and these fortunates are charmed amongst what seems to be a never-ending scene of glory and magnificence.

I feel indebted to Mr. Baker for allowing me to see his collection and to your Society for publishing this scanty return. The types are in the Raffles Museum at Singapore.

Leptomastix guttatipennis io var. nov.

Similar to type but extreme apex of fore wings narrowly to center from cephalad, clear, whole dorsal surface of thorax metallic, the head washed with it, the middle legs purple save tips of tibiae and all tarsi, hind tibiae all dark, fore tibiae purple laterad. Pedicel purple. Teeth of mandible unequal.

Singapore, *C. F. Baker,* two females.

The hyaline apex of fore wing was not visible in a wing placed in balsam so that it was probably overlooked while describing the type. Ovipositor not free.

Leptomastix penangi sp. nov.

Like description *trifusciatus* but differing notably in that the wide distal band of fore wing is triangularly produced at caudal margin nearly to the middle band (in the other only slightly produced proximad), while the latter is twice the width of the first (so in the Queensland species). Head only suffused with brown and the front legs are nearly all metallic, only the middle femora brown, the tarsi and tips of hind tibiae.

Penang, *C. F. Baker,* two females.

Genus **RHYNCHENTEDON** novum.

(Entedonini).

Head from in front twice wider than long but the mouth produced into a short cone, the eye forming the lateral boundary, the antennae inserted below middle of face (at base of the snout), the latter with a wide V-shaped suture across about middle, meeting a similar median suture from between the antennae up; face roughly shagreened, more roughly dorsal of the suture. Marginal twice the submarginal, stigmal minute, postmarginal elongate. Parapsidal furrows over half complete. Abdomen conical, longer than the rest of the body, 2 half surface, others short, petiole upon 2 so that the abdomen projects beneath it, half longer than wide, thick, curved. Propodeum with a short neck, two separated median carinae which swell at basal half (that is to say are twice farther apart along about basal half, since each convexes from base and then at distal half becomes straight and parallel to the other); they diverge widely at the neck; a straight lateral carina. Antennae 9-jointed with three wing joints (2 and 3 very short), club solid, nippled. Mandibles short rounded at apex, dentate. Hind tibial spur stout. Cephalic tibial spur short, forked. Scutum, scutellum simple. A "valley" laterad of lateral carina of propodeum.

Rhynchentedon maximus sp. nov.

Geno type.

Three mm. Aeneous, wings with a large oval spot from proximal side of stigmal vein extending three-fourths way across. Legs and scape red, knees, tarsi and tibial tips white. Funicle 1 elongate, longer than the scape, twice 3; 2 equal to club which is shorter than scape; 3 twice longer than wide, shortest save the very short pedicel. Thorax rather coarsely punctate; propodeum laterad of lateral carina, its neck (a part beyond the diverged ends of the median carinae which is tricarinate) and abdomen densely scaly; petiole with carinated sides and at base a weak pair of median carinae. Propodeum glabrous between lateral carinae.

Singapore, *C. F. Baker,* one female.

Genus **LUTHERIA** novum.

(Encyrtidae).

Frons glabrous with scattered setigerous pin-punctures, lower face scaly with these punctures thick, the scrobes very short, in a semicircular depression bounded by the acute edges of the frons. Runs to *Baoanusia* but club solid and only one-fourth longer than funicle, marginal vein punctiform, the venation reaching costa only at apex of marginal which is well developed, two-thirds the straight stigmal; mandibles with two equal, acute teeth which are short and wide; frons moderate; funicles not subannular but much wider than long; ovipositor issuing at apex. Robust. Abdomen depressed rotund.

Lutheria ajanea sp. nov.

Geno type.

Two and 65 hundredths mm. Blue, the fore wings clear but with a large brown cloud across from distal venation, its distal margin very conical, reaching at its apex, one-third to apex from apex of stigmal; its proximal margin obliqued from the bend of the submarginal vein. Mouth up to antennae, pleurum and venter of thorax and legs reddish brown, legs more or less infuscated; antennae brownish red, club black. Thorax above sculptured like the frons. Pronotum distinct, transverse; thorax wide but narrower than abdomen. Dilation of scape moderate. Cheeks as long as the eyes. Pedicel longer than any funicle, not long.

Singapore, *C. F. Baker.*

Cowperia punctata gen. et sp. nov. **Encyrtidae.**

Characterized by the mandibles which are acutely 3-dentate, 1 and 3 small, 2 distinctly much longer than either. Marginal punctiform, stigmal and postmarginal long and equal, stigmal curved. Head large round, scrobes distinct, forming a large semicircle, the moderately wide frons not prominent, the head rather coarsely punctate. Scape long, with a slight ventral exfoliation at tip; club conical, its segmentation not very distinct, as long as pedicel and funicle 1 jointed. Pronotum transverse, scutum wider than long, scutellum longer than it, with a delicate median carina. Ovipositor valves extruded a bit, abdomen flat. Form robust.

Two and 50 hundredth mm. Blue, the wings lightly browned; antennae save the fuscous funicles 2-6, and the legs save coxae and femora at over proximal half (in middle legs all of femora save apex and the base of the tibia) reddish brown the club more yellow. Umbilicately punctate, lateral margin of scutellum carinated. Propodeum with a curved carina on each side of meson (rather far laterad). Funicle 1 widening kistad, twice longer than wide at apex, twice 4 which is quadrate and nearly as long as 3 or the pedicel, 6 wider than long. Fore wing densely ciliate, the hairless line narrow and obscure, the ciliation running to base from it.

Singapore, *C. F. Baker.*

Systolomorphella lyra sp. nov.

Metallic, the fore wings infuscated from bend of submarginal to apex of postmarginal and with a narrow curved hyaline cross-stripe from distal third of marginal vein. Tarsi pale yellow, knees, tips of tibiae a bit reddish. Funicle reddish but basal joints darker. Antennae a bit below eyes. Hind femur, armed with 7-8 moderate teeth, 1 at about middle, the next three or four largest, columnar but not large. Abdomen 6 distinctly largest, longer than wide, then 7 and 5;

6 and 7 densely scaly, 5 cross-lined, 2 glabrous. Scape clavate, ring-joint somewhat wider than long, funicle 1 longest, a fourth longer than wide at apex, 4 quadrate, 6 wider than long, prolongation of 7 nearly two-thirds of the club. A median carina and narrow sulcus from spirade on propodeum which is subglabrous. Punctate, metapleurum so. Abdomen much longer and flatter than in *cinotipennis,* sessile. Parapsidal furrow shallow, incomplete.

Singapore, *C. F. Baker.*

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